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VETERINARY MEDICINE

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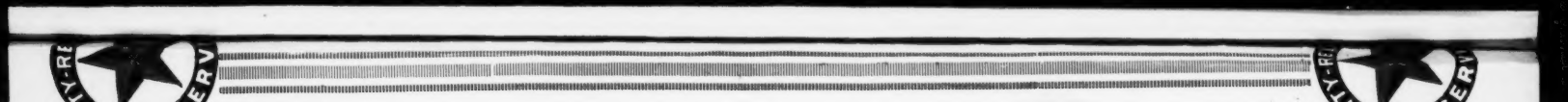

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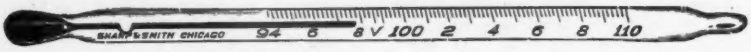

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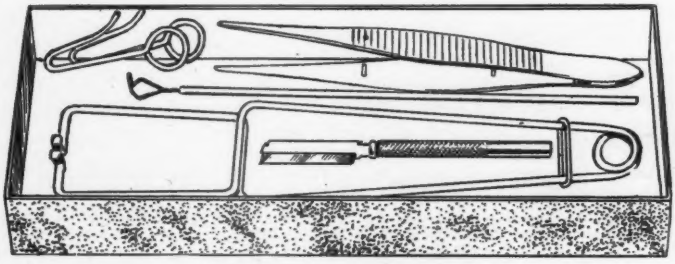

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HORSEMAN, THE MAN: A STORY WITHOUT WORDS

"Think in Terms of Cows"

IN highly constructive and, we believe, friendly criticism about the wrong attitude he thinks VETERINARY MEDICINE is taking in the matter of tuberculosis eradication, Dr. C. C. Walker, of Bath, N. Y., advises us to "Think in terms of cows and not humans." As the street gammen would say "You've said a mouthful," and while the expression is used to show that we are mistaken in the matter of resistance, we wish to borrow it as a slogan—a mighty slogan to guide the veterinary profession in all of its programs of tuberculosis eradication. "Think in terms of cows" is what, until now, we have failed to do, for instead of trying to drive home the big idea that the unhealthy cow is an unprofitable thing to possess and that the healthy one holds out the only hope to the cow industry, we have been trying to show that cows are a menace to mankind.

We Carry Water on Two Shoulders

That is, we have been living off of the cow man with one of our hands and giving him a black eye with the other. On the one hand we claim a friendly alliance and on the other we discredit the products he has to sell. We have gone before breeders of the communities in which we practice to tell them all about the wisdom of keeping only pure-bred bulls so they can get more milk and then we have marched right up to the boys and girls of the high school and told them that if they drink milk they will get tuberculosis, and to clinch the argument we have shown them the film "Out of the Shadows," assuming without proof that it portrays the truth.

Our Loyalty Questioned

We have created the suspicion that we are not friendly, that we can't be trusted, that the millions invested in cows are not in safe hands, because we have carried water on both shoulders and have not always stuck to the proven truth as closely and as religiously as we should. While the words seem harsh, we have done a good job of impersonating a well-known Biblical character.

At first, we justified our position on altruistic grounds and later when the intercommunicability of bovine and human tuberculosis was found to be a lesser menace we began to preach the necessity of arousing the people in order to save the cow from a disease its owner did not believe in, and as a result our motives have been questioned. To call spades by their right name, we have been charged

with having no other objective than that of testing cows at so much per head. We have lost our professional orientation; we do not belong to the public-health service and the live-stock interests are kicking us out. They are beginning to feel safer in other hands, and the practitioner is the victim. The opposition is taking form in state medicine and in farm bureau movements marshalled from without our ranks and in which the veterinarian is permitted to play only a secondary role.

Get the Last Tuberculous Cow

VETERINARY MEDICINE is for the veterinary profession, first and last. It is in the fight to eradicate bovine, porcine and avian tuberculosis, but it has only the citizens' interest in human tuberculosis. We believe in the caption "Get the last tuberculous cow," just as we believe in "Get the last tick," and in Chief Mohler's inspiring remark "Eradicate tuberculosis before it is too late," but we do not believe that it is wise for the veterinary profession, in view of its purely agricultural connections, to promulgate propaganda belonging strictly to the public health service. We believe it is as unwise for the veterinarian to proclaim even the cold facts about tuberculous milk as it would be for the milkman to paint them on his milk wagon, or for us to champion the cause of those who would eliminate horses because flies breed in their excrement. That duty belongs to some one else. Ours is to "Think in terms of cows," to show how manifestly unprofitable it is to raise diseased animals, and the market advantages of disease-free areas, and last, to preach more about the food value of milk.

Lost Status Should be Retrieved

The program that seems to be mapped out for us is to retrieve lost ground; to regain the kind of relations with the stockman that once existed between the horseman and his veterinarian—a relation that was characterized by confidence, loyalty, devotion and friendliness.

In short, VETERINARY MEDICINE believes that the future of the veterinary profession as a vocation for practitioners depends upon cultivating such an unquestionable devotion to the live-stock interests that it will win a wholesome, universal support from them.

No Offense Intended

The subject is germane to the welfare of the whole profession, but having subtle features that place the transgressor upon ticklish ground, it would be a too great display of egotism to claim that there are not two sides open to good arguments. In discussing it there is always the risk of offending those engaged in sanitary work. No such offense is intended. We wish only to do good, not for today or tomorrow but for the more distant future.

"Think in terms of cows" is a captivating caption. It explains our views to a nicety. We thank Dr. Walker for the inspiration it contains.

"DON'T GIVE UP THE SHIP"

"The veterinary profession is not overcrowded," declares Dean D. S. White in a recent interview published in the Columbus (Ohio) Dispatch. "And the prospects for those who enter the profession now are bright."

The article goes to say that the widespread misapprehension as to the effect of automobiles on veterinary service is misleading, that while horses of the lighter types are disappearing there is a good demand for heavy draft horses and that there has been no great decrease in the number of horses, and to counterbalance whatever loss that might have accrued in one direction other fields are opening up and broadening out.

Many Needed to Fill Official Rank

There are nearly 2,000 veterinarians needed by the department of agriculture; every state employs one and many two or more full-time state-veterinarians; experiment stations will need them in increasing numbers; state extension service is a promising opening for others; every city sooner or later will employ food inspectors who are trained veterinarians; then there are the ranks of teachers, the army and the many commercial establishments to be filled. In view of these established openings and those in prospect there is no good reason why young men should not enter the veterinary courses with as much confidence in the future as the students of other departments many of which are overcrowded and which lead to less sharply defined vocations.

General Practice the Sheet-Anchor

To this must be added the splendid prospects of general practice which, although apparently undergoing changes sometimes referred to as harmful to the practitioner's welfare, is still the sheet-anchor of the profession. There is the horse practice of the large cities; the exclusive small animal practices; the horse and swine practices of the Corn Belt; and the horse, dairy and poultry practices of the more

thickly populated regions. These are not lures. They are sensible inducements for anyone who has the aptitude and who will qualify.

There is a strange confusion in the reports coming out of the field today. Some are discouraged and some are leaving the profession entirely while others practicing under precisely the same conditions announce larger returns than ever before in their experience. The explanation is invariably found in the analysis of the indivdual. The one is alive, a go-getter, a reader, a supporter of associations, while the other is dead, lacks foresight, complains but does little to help himself and with few exceptions does not know how to exploit the new ground the profession is cultivating.

Broader Accomplishments Needed

With the exception of those engaged exclusively in horse or small animal practice in the larger cities a veterinarian to be successful must be able to cast a horse with skill and security in the barnyard; he must know how to make a good showing with the dog in the parlor, know its breed and give it medicine without making a mess of the job; he must then march to the hog lot and be able to surround himself with proper conditions to vaccinate the herd scientifically; he must know how to confine the cow and other bovines for physical examinations and surgical operations; and finally he falls short of meeting requirements if he can not go into the chicken coop and acquit himself favorably in the diagnosis of the usual run of fowl ailments.

He has been taught the fundamental principles at college. He must now put these and common sense into practical operation. He must take an interest in his work, read, study, co-operate with his colleagues, and never lose any opportunity offered to take up graduate work.

The Responsibility Is Ours

If veterinary practice wanes it will be the practitioner's own fault. It will be his own fault because he has not studied and because he has not made himself a part of a solidly organized profession that can, through solid organization, keep things going straight.

It is highly unbecoming of a man who does nothing for himself nor for the associations to stay at home and growl about his misfortunes.

The veterinary profession is all right, its prospects are encouraging no matter from what angle they are analysed, and unless all signs fail its loyal personnel will soon be repaid for its devotion—for staying in the ranks while times seem hard.

"OUCH!"

The Flivver or the Pen?

Soon after the county farm bureaus were well started in Illinois most of them began to get out a multigraphed sheet occasionally, to carry farm bureau news and announcements to the members and let them know that the county advisor had not forgotten them. A number of these little news sheets have developed until they are full fledged newspapers. Some of them carry a considerable volume of advertising and have a regular advertising man hustling for business.

Maybe this evolution is a good thing, but—is it? We surely have plenty of farm papers—some folks are unkind enough to say too many. I doubt if anyone would say that these county farm bureau papers are better edited than the best farm papers, or that they convey any information that is not given in the farm papers.

The county farm bureaus certainly weren't formed for publishing purposes. I wonder if the county advisor can't do about 10 times as much good talking with a farmer in his own barnyard than he can sitting in the office and writing editorials at him? The farmer can visit while he loads the manure spreader, but he's got about all the reading matter now that he can fine time to read.

If the county advisors are destined to become editors we welcome them into the fold. But we wonder if they can't do more good beating it around the county in the flivver.

Let's hear what our readers think about it.—Prairie Farmer.

Comment: The Prairie Farmer has not been a friend of veterinary science. On the contrary it has done a great deal of harm to the man of Illinois who travels the mud roads against rain and storm to administer to sick animals. It has discouraged many a faithful practitioner. It has and does now encourage movements that we know will make animal husbandry a hazard by refusing the hand that proffers help and hope.

There is however a ray of encouragement in the thought that the agricultural press, like the veterinarian, the druggist, and the merchant, is no exception in the matter of whining when the field it has culivated is encroached upon. The Prairie Farmer wants the farm bureau to vaccinate hogs but it does not want it to enter seriously into the publishing business.—Ed.

"Charity begins at home," says an old axiom, but unfortunately from this place of isolation it seldoms becomes addicted to wanderlust.

The Live Stock Situation in Russia: A Warning

IN the November issue we published briefly an excerpt of a report of our distinguished colleague, Lieut.-Colonel Zagdroski, veterinary officer of the Polish army who has investigated the animal situation in Russia, not only as a bit of interesting current news but to show to what dire strait a country can fall when its public officials kick the veterinary profession about as a matter of no consequence. It has required a world war, a great revolution, the starvation of millions of people and animals and the birth of a large communistic state to show the price a country must pay for such indifference.

The veterinary schools and laboratories of Russia were ruthlessly destroyed and nothing tangible has been established to replace them. The personnel of the profession previously of a high order now consists largely of soldiers who have no other qualification than that obtained by their connection with mounted organizations of the army. The chief of the veterinary service is himself one of these individuals. His best recommendation seems to be his lofty ideas about socialism.

School Situation Bad

The old veterinary schools have become the "Institute of Veterinary Medicine and Breeding" which is divided into two departments, one for each branch indicated in the name. The course of the two years is the same for both, but thereafter, the students of each group take special courses for two years more, and all who wish the diploma must attend another two years. This is the written law under which the institute operates. A six-year course, forthwith! If taken seriously this would seem as if the soviets were going to lead all other nations in this particular matter.

But the truth as disclosed by these investigation is quite different. A decree issued as early as 1917 made things much easier for prospective Russian veterinarians by allowing any citizen to enter the courses who is over 16 years old and is able to read and write. There is no tuition and students receive free clothes, board and books and besides are given a monthly allowance. It is needless to say the schools do not lack students such as they are, but, worst of all, teachers who dare display devotion to the science by insisting that these bolshevik students pass the prescribed examinations do so at the risk of their safety —at the risk of being pointed out as traitors to the government.

Animal Situation Precarious

After five years of this state of affairs the animal population has fallen into a state that beggars description. As an example, one official report goes on to mention that in one district (Tourgai) 10,000 chamois, 60,000 goats, 50,000 cattle and 200,000 sheep have died. In another region (Mosajsk) the losses were more than half of all the cattle and sheep (Izviesta, No. 25, September). These ravages extend from Dnieper to the depths of Siberia. The deaths are due to contagious diseases and famine. Rinderpest which had been unknown in Russia for 20 years is now rampant throughout the whole country, and in the face of this, sanitary measures are not enforced and the personnel is spare and incompetent.

On the Turkish front the Russian army abandoned its material and its personnel remained in that country in bands dragging contaminated animals with them and stealing others as they went along until the whole country north of the Caucasus mountains has become pestered and from here scourges have spread west to Roumania and north to Samara. In 1920 the army on the northeast infected the region of Minsk and carried its havoc into Poland. While statistics are incomplete it is estimated that the mortality of animals has been from 60 to 80% of the total.

This alarming situation did not attract the attention of the Soviets until 1919 when millions of people were dying from starvation and disease, and when measures were undertaken, its arch-quack Martine, chief of the veterinary service, was not competent to direct a proper sanitary action.

Horse and Human Population Ravaged With Glanders

At this moment it is estimated that 70% to 75% of the horses of the red army have died of mange and glanders and the 20% and 25% remaining are still spreading the disease through the provinces. As an example, the report states that in 1921 the examination of a single group of 5,000 horses showed 1,500 were affected with clinical glanders. Still worse is the prevalence of glanders among the people. So grave is this situation that special hospitals have been created for humans affected with this disease. At Kieff over 400

patients died of glanders in one hospital, 102 of which died during the month of June. The infection is spread chiefly by eating horse meat.

Relief Not in Sight

The end of this period of desolation is not in sight, and even after sound measures are put into operation it is predicted that the animal population of Russia will be menaced by contagious diseases for years to come—for two generations at least.

The obscurity of the veterinary profession throughout the civilized world is nicely told in the story of Russia. In all the press reports about the Russian famine and Russian desolation not a hint has ever appeared about the real cause—the breaking down of its veterinary service.

PULMONARY TUBERCULOSIS AND MILK CONSUMPTION

The Public Health Reports issued by the treasury department (Vol. 37—No. 46, September, 1922) contains some interesting figures in regard to the mortality of pulmonary tuberculosis of humans that are worth studying. Although the death rate in this country has gradually diminished during the last twenty years it is still much higher than that of England and Wales. During ten years (1910-1920) the average death rate was 118.8 per 100,000 for the United States and only 109.2 for England and Wales. War conditions do not enter materially into the figures as the statistics apply only to the civilian population.

During eight years (1913-1920) the death rate in New York City per 100,000 was 154.5 while that of London was only 141.7. The Paris rate for the same years was 299.9 per 100,000, almost twice that of New York City and over twice that of London. The highest rate recorded is that Cracow, Galacia, reaching the appalling figure of 651.2 which is approximately five times that of New York and London.

Among the American cities the report for 1921 shows that Kansas City has the lowest rate and Boston the highest. The rate for Kansas City is only 60 per 100,000 while that of Boston averages up to 386. On declining scale, Chicago follows Boston's high rate with 385, Newark with 356, Cincinnati with 320 and Minneapolis with 309. On the ascending scale, Columbus follows the low Kansas City rate with 67, Toledo with 121, Jersey City with 147 and Pittsburgh with 181.

To those who fear that pulmonary tuberculosis of humans follows the cow or that high death rate among adults is due to drinking cow's milk during adolescence, these figures should be exceptionally comforting. Kansas City shows an exceptionally low rate while Minneapolis, the pioneer of milk sanitation, has one of the highest death rates from pulmonary tuberculosis among the large American cities.

It is very nice to have it thus pointed out that insofar as pulmonary tuberculosis is concerned the cow is "not guilty as charged."

But it is no less necessary to eradicate bovine tuberculosis in the interest of the milk industry for the reason that disease is a repulsive companion to any food. "Milk" and "disease" must be separated before the "Use More Milk" campaigns can gain full headway. The National Dairy Council puts the advice in this connection in a nut-shell, by telling farmers that the way to educate people to drink more milk is to produce better milk and to which we would add, produce milk that will win a reputation as white as its color.

TRIM THE HOOF OF HOGS

"Like other hoofed animals the hog should have its feet trimmed," says The Duroc Bulletin. To accomplish this feat properly the subject is thrown on its side and the bearing surface of the wall trimmed with nippers and rasp from the toe to a point about one-half way back from the heel, but on the outside only. It is not permissible to trim the inside for if the outside touches the ground first the toes will spread apart and prevent proper shaping of the foot.

It is important to trim the toes well even to the point of making them bleed in order that the pasterns can straighten up to the normal angle. When there are large numbers, the author prefers to use a breeding-crate as a means of restraint. The bottom is taken out and a 2x8 is nailed longitudinally in the middle from sill to sill so that the hog's leg will straddle it. Then crate is raised with a double block so as to lift the hog from the ground to a comfortable height for the operation to work sitting down.

POLYVALENT SERUM FOR PNEUMONIA NOT A SUCCESS

Vaccines prepared from cultures of the pneumococcus and autolyzed pneumococci have been administered in the treatment of acute lobar pneumonia, but clinical results do not appear to justify this usage. The use of antipneumococcic serum in the treatment of pneumonia presupposes that adequate laboratory equipment and personnel are at hand for the rapid identification of the various types of pneumococci. That reason, together with expense, and doubtful clinical results operate against its popularity.

Summarizing the work done at the Rockefeller Institute it is evident that favorable therapeutic results were obtained in Type I infections by using the corresponding antiserum; while antipneumococcic serum in Types II and III show very slight or no convincing evidence of their therapeutic efficacy. A polyvalent serum for the treatment of pneumococcal pneumonia of all types has not proved successful.—(Jour. A. M. A., Nov. 18, 1922).

THE REAL WHY OF THE ARMISTICE

Just a few lines of appreciation for your most excellent article, "Some Facts About the Horse and Horse Practice," as it is one of the best articles I have had the pleasure of reading for a long time.

If the facts you bring out in reference to the army horse and mule were more generally known, together with the fact that the army could not have gone to Germany on account of breaking down of its transportation; and if it were also more generally known that the lack of animals made it impossible for the armies to advance to Berlin as they otherwise undoubtedly would have done, there would not be so many questions asked about why the armistice was signed instead of marching on. And, furthermore, if these cold facts were generally known the clamor for motor transportation would undoubtedly diminish, at least to some extent. Keep up the good work.—Major ———, V. C., U. S. A.

The regular army now has 127 officers, one in excess of the legal allowance. Listed as to grade they consist of one colonel, 6 lieutenant colonels, 13 majors, 21 captains, 83 first lieutenants, and 3 second lieutenants.

CULLING TO INCREASE EGG PRODUCTION SHOWN IN EXHIBIT

A sure means of increasing egg production by proper culling is given in an exhibit entitled "Make your poultry pay" shown by the United States department of agriculture at the International livestock exposition, Chicago, December 2 to 9.

Two pens of live chickens are shown. One lot of 12 hens was not culled, and ate in one year 900 pounds of feed, costing $20.70. The 12 hens laid 100 dozen eggs during the year. Contrasted with this lot is one of 8 hens which were culled, and which laid the same number of eggs but ate only 600 pounds of feed, at a cost of $13.50. The lot of 12 hens that was not culled ate 50 per cent more feed than the lot that was culled and produced no more eggs. The extra cost of the feed however, is but one of the larger costs. Others are the extra labor, extra housing room, and extra capital invested.

To enable the poultryman to cull his hens properly the exhibit gives the points to be looked for when determining a poor layer or a good layer. These points are quickly learned and are means of increasing profits from poultry.

THAT VOTE AGAINST COUNTY AGENTS

Referring to an editorial published in the December issue of VETERINARY MEDICINE, with the heading "Vote Against County Agents," I feel, in justification to the county agents concerned, that a further explanation is due the situation as existing in South Dakota.

It may be of interest to know that the County Agent voted out in Hand county, so specifically referred to, is a graduate veterinarian. This man is loyal to the profession, of which he is a member, and during the tenure of his office did no veterinary work whatever. In fact his constituents did not know that he was a graduate veterinarian. The election in this county had nothing to do with the personality or work of the County Agent, but was mainly based on difficulties arising between two farm organizations.

Every county has its own peculiar situation. In Jones county, another referred to, the county agent was a stickler for system, probably having as good ideas in regard to what county agent work ought to be as any county agent in the country. With the exception of vaccinating cattle against blackleg, he did no

veterinary work, although no graduate veterinarian existed in the county.

The principle of county agent work is right and should receive the hearty support of everyone. It is a part of the educational system of this country and should be considered as much by all, but it may be that this work is over the heads of some of the opposition. Putting county agent work to a popular vote is like going to a school room and asking the pupils whether the school should be discontinued or not.

Most of the criticism that is published deals with generalities—or in other words—if a county agent "slops over" then the entire system is wrong and all county agents should be eradicated. Possibly more could be accomplished if some of these cases were investigated and the criticisms made specific—then the culprit could be weeded out. Most of the cases of differences, between veterinarian and county agent, that the writer has investigated, have been six of one and a half dozen of the other. As far as harmony of county agents and veterinarians is concerned, we are fairly well satisfied with South Dakota because we know of states where conditions are worse.—Gilbert S. Weaver, Extension Veterinarian.

Brookings, S. D.

THE ANNUAL VETERINARY HEGIRA

During the first week of December, Chicago is the Mecca of the veterinary profession of the United States and Canada. Approximately 800 participate each year. They come from nearly every state in the Union and from the provinces of Canada and they represent every branch and every activity of veterinary science. They come to the meeting of the United States Live-Stock Sanitary association; to that of the Illinois State Veterinary Medical association and to the International Live-Stock exhibition; three events any one of which is big enough to attract veterinary delegates from the remotest corners of the continent. But this is not all of the attraction Chicago offers to veterinarians during this remarkable week. There are in addition conventions and conferences of various live-stock promotional associations without limit whose programs make exceptional entertainment for any veterinarian. The annual meeting of the Horse Association of America and its banquet are features of the week to which the veterinarian has been giving serious attention. Then there is the business meeting of the A. V. M. A.

This year has been no exception, although the attendance probably fell slightly below the average of the past few years.

The events of the week would fill large volumes with good reading, just as they fill those who come with enthusiasm. The wonder is that there are not 8,000 instead of a bare 800 veterinarians who take advantage of these informative events, concentrated in a single place during a single week.

The annual meeting of the Illinois association attracted four hundred, the sanitary association almost as many and then there were hosts of practitioners who attended the International independent of these professional organizations.

The first week of December is truly a big feast for the veterinary profession of this country but in view of its instructive and entertaining features the attendance falls short of what it should be. The Illinois program aims and probably does cover all of the major matters of current interest to practitioners, as well as the occasion affords; the sanitary association assumes and carries out the same idea for the sanitarian, while the International exposition display the last analysis of the problems of animal husbandry. The week is truly a feast. It deserves even a better patronage.

WHY NOT BOOST THE GOOD DAIRYMAN?

Instead of doing harm to the whole dairy interests by discrediting milk as a food because some milk producers are too careless to clean up it would seem perfectly legal and proper for such regulatory officials as city councils and boards of health to employ experts to gather information about the sources of good milk. Without putting any ban whatever on the products of the dirty, careless dairyman it does seem possible that he could be practically put out of the raw milk business by the simple process of advertising the facts about those who are meeting common-sensed requirements. The idea is for officials in charge of public health measures is to put a premium on good milk instead of taking the more difficult plan of putting a ban on the bad. By setting a standard, designed to become more and more stringent as conditions warrant, and by placing the names of those who meet the requirements on an accredited list for publication in local papers, the city council of at least one small city in this country has brought about a decided improvement in its milk supply. In the one case the dairyman asks for inspection; in the other he often imposes objections.

Editors' Personal Page

Non-fighters perish from the earth, and are not missed.

No great reform was ever wrought without a fight.

Fighting for your profession, like fighting for your flag, is but a struggle to protect your fireside.

Although an existing order may be entirely destroyed by fighting there is nothing to worry about, because something better will replace it.

All men who live in terror of old age should be able to take some comfort from the lives of Cannon, Rockefeller and Clemenceau.

Sound programs of advertising will build up any legitimate business, including the veterinary profession.

WELCOME TO THE REALM

H. PRESTON HOSKINS, V. M. D.

With the January issue Dr. Hoskins takes over the editorship of the Journal of American Veterinary Association, vice Dr. J. R. Mohler, resigned.

DISTINGUISHED PARISIAN VETERINARIAN

DR. H. SIMONNET

Simonnet, whose contributions to veterinary literature frequently appear in VETERINARY MEDICINE will be remembered by many American veterinary officers as the liaison veterinarian of the 1st Army, A. E. F.

He did valuable service for our army, and was a much beloved man among the officers of every branch of the service at army headquarters, for his devotion to our cause, his military bearing, and his lovable, even temper. And, although modest to a fault, he earned the reputation of being able to acquit himself alike on anaphylaxis or trigonometry.

NINE WAYS TO HELP A VETERINARY ASSOCIATION

1. Join it.
2. Pay your dues promptly.
3. Attend the meetings.
4. Contribute to the programs.
5. Enter actively into the discussion.
6. Do all your growling in open meeting.
7. Submit constructive criticism for the good of the cause.
8. Show due courtesy to speakers by being attentive and orderly.
9. Get a new member.

Purely Practical

Protective Foot Bandage

By E. B. Evans, Prairie View, Tex.
Veterinarian Prairie View State Normal,

THE Veterinary Science Department of this institution has worked out a protective bandage that might be of some value to practicing veterinarians and others. Its chief uses are to protect surgical and accidental wounds occurring in the region of the foot and

Fig-1

coronary band. To protect and hold gauze bandages, medicated packs and surgical dressings in position in this region.

Fig-2

The bandage is both simple in construction and inexpensive, being made from an ordinary grain or gunny sack.

Steps in cutting out and applying are as follows.

(1) An ordinary gunny sack is laid flat on

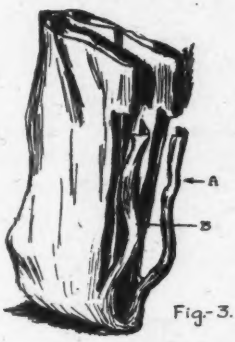

Fig-3.

the floor or ground. Standing at bottom of sack, invaginate right half of sack including bottom into left half. This will give you four thicknesses of sacking and right side will have two visible borders or flaps.

Fig-4

(2) With a knife or pair of scissors, begin ten inches from top of sack about 1½ inches from edge or right borders or flaps and cut

downward to within three or four inches from bottom of sack. This is done to both flaps and

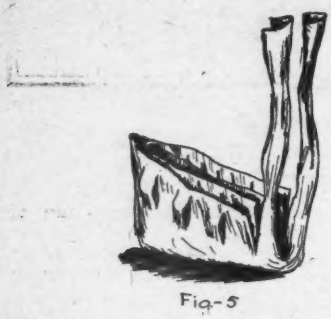

Fig-5

will give you when completed two tails which will later be used as draw strings (see A & B, Fig. 3).

(3) Cut sack obliquely downward and backward beginning eleven inches from bottom of sack at left border and ending seven inches from bottom at two tails on right side. (see Fig. 4).

Fig.-6.

(4) Top of sack is discarded leaving bottom and two tails. Three double eyeholes are made through two thicknesses of sack on both sides. (see Fig. 5).

(5) Each tail is laced through the eye holes on each side beginning at back and going forward. The tails are then tied in front drawing the bandage up snugly around the ankle and then carried back around the ankle and tied in the rear (see Fig. 6 & 7).

Bandage can be made in one minute and

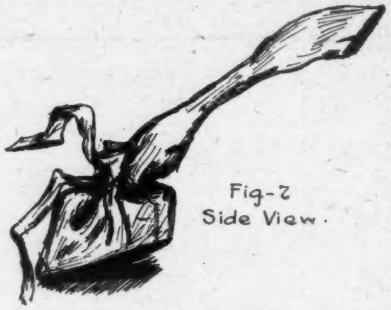

Fig-7
Side View.

can be made to fit any size foot by altering dimensions. When applied properly to an animal in box stall or running in pasture, the bandage will remain in position for ten days.

The Department is indebted to Mr. John H. Williams, a student for the idea and to Prof. W. H. Robinson for sketches.

Even a fool will scare at an infuriated bull but only the wise man fears the "gentle" ones.

According to Dr. T. B. Crowe, veterinarian for the American Railway Express at Chicago, poor shipping crates, improperly constructed crates and crates too small for comfort are the cause of thousands of dollars of loss to shippers.

COD-LIVER OIL FOR ULCERATION OF THE CORNEA

Dr. A. C. Worms, one of the most prominent and oldest practitioners in Chicago, announced at the annual meeting of the Illinois Veterinary Medical Association that instillations of cod-liver oil into the conjunctival sac of dogs cures ulcerations of the cornea like magic.

URINARY SEDATIVE AND DIURETIC

℞

Fluid extract saw palmetto
Fluid extract cork silk of each.....6 ozs
Fluid extract sandalwood.....3 ozs
Aromatic elixer q. s.....32 ozs

Dose for horse, 1 ounce; for dog, ½ to 1 dram.—Reeds.

Important News and Announcements

DR. F. A. BOLSER DIES SUDDENLY

Dr. F. A. Bolser, of Newcastle, Indiana, died in November at his home while undergoing an operation for intestinal obstruction. He was one of the most prominent veterinary practitioners in the United States, a lovable character, and a devoted member of a profession he served with credit and distinction. He was 65 years old and died on the 42nd anniversary of his marriage, leaving a widow and a son—Dr. Harry Bolser.

ILLINOIS VETERINARIAN KILLED IN AUTO ACCIDENT

Dr. John H. Fowlie, one of the prominent practitioners of Illinois, located at Ottawa, was instantly killed November 20 when his Ford roadster turned turtle on the road near LaSalle. The accident occurred at 2:30 in the morning and his body was found pinned under the overturned car several hours later. He was a graduate of the Chicago Veterinary College and has been active in local and state veterinary association work.

ANIMAL RELIEF WORK IN THE BURNT DISTRICT OF ONTARIO

Incident to the great conflagration and disaster that befell Northern Ontario October 4, Dr. W. A. Thompson, chief inspector of the Ontario Humane Society, has been placed in charge of the animal relief work, which is being conducted under the directions of the department of agriculture of the province.

A district 50 miles long and 20 to 30 miles wide was swept by flames that caused the loss of three score of lives and many animals. Many of the surviving animals are suffering from severe burns and from herding them in unsheltered quarters during bitter cold weather. The handling of an outbreak of influenza, the treatment of hundreds of animals for burns and the usual run of diseases that arise from exposure and the construction of provisional shelter are among the work undertaken by the relief committee for the benefit of the unfortunate inhabitants. An idea of the havoc may be obtained from the report that Baileybury lost 937 houses out of a total of 1,100. The only practitioner of the district extending from North Bay to Cochrane (250 miles) is Dr. Fleming of New Liskeard.

DR. ASHCRAFT DIES IN THE PHILIPPINES

Dr. James B. Ashcraft, a professor of veterinary science in the University of the Philippines at Los Banos, near Manila, died November 17. The cause of hs untimely death is not reported in the dispatch. Dr. Ashcraft was a young man, having only graduated at the Ohio State university in 1920. He had been in the Philippines since July of that year. He is survived by his mother, Mrs. Fannie Ashcraft, two sisters, and a brother, all of whom live at Columbus, Ohio. The body will be brought home for burial.

NORTHWESTERN INDIANA VETERINARIANS ORGANIZE

Twenty veterinarians representing 12 counties in the northwestern part of Indiana met at the office of Dr. G. L. Ebright at Hammond November 22 to commune over the organization of a local association to have jurisdiction of that part of state. An association was formed and temporary officers were elected. These are Drs. H. C. Kannal, president, and G. L. Ebright, secretary. The first regular meeting to carry out a stated program and to elect permanent officers will be held at LaPorte, January 31.

At the California elections in November antivivisection lost by a vote of three to one.

It is becoming quite the custom for state veterinary associations to join hand with their universities for a short course of instruction in lieu of the usual stereotyped program of the past.

A short course for veterinarians will be given by the veterinary department of the Washington state agricultural college in co-operation with the Northwestern Veterinary Medical Association, January 9-12.

ANNUAL MEETING OF THE U. S. LIVESTOCK SANITARY ASSOCIATION

State Veterinarian W. J. Butler of Montana was elected president of the association to succeed State Veterinarian Munce of Pennsylvania and Dr. O. E. Dyson was elected secretary-treasurer to succeed himself at the annual meeting of this association held at Chicago, December 6, 7 and 8, 1922. Drs. Ferneyhough, Virginia; Mercer, Kansas; Davis, Wyoming; Miller, District of Columbia; and Lewis, South Carolina, were elected vice-presidents.

Bovine tuberculosis, hog-cholera control, infectious abortion, and tick eradication were the major subjects presented and discussed at length.

The great number of original papers, the committee reports and the discussions, entirely too voluminous for a short report, indicate in a general way that much progress is being made in livestock sanitation, both in its science and practical application.

Measures were instituted to place the association on a better financial footing and to assure a more prompt publication of the proceedings than last year.

THE HORSE ASSOCIATION MEETING

The annual meeting of the Horse Association of America held in Chicago, during the first week of December, one of the most successful in its history, portrayed a growing strength and that a fruitful field is being exploited under a masterful management. The program throughout displayed enthusiasm and confidence and adhered to its adopted policy of operating not as an enemy of the motor, but as a friend of the horse and allied industries.

The annual banquet and dance held at the Drake hotel was featured by the usual splendor, entertaining addresses and all-around good fellowship.

General John G. Pershing spoke approvingly of the work of the Horse Association and announced in no uncertain terms that the shortage of some 200,000 horses in the A. E. F. very materially curbed the activities of the army during its operations in 1918, and that in spite of contrary ideas, there were times when cavalry divisions might have been thrown into the fray with tremendous advantage had they been available.

Brig. Gen. George V. H. Mosley, commanding general of the 6th corps area, in a scholarly address "When the Horse Goes Forth to War" confirmed General Pershing's opinion that the horse industry is a precious instrument in the national defense.

Mr. Robert McDougal, president of the Chicago Board of Trade, spoke about the influence of horselessness on the price of grain and hay, quoting figures that show the unwisdom of horseless farming. "Startling facts about American Agriculture," by Mr. G. I. Christy, himself a farmer, brought out all the title implies in regard to the dangers in sight for the exponents of tractor farming.

These and other addresses delineated the wit and wisdom that characterized the spirit of the occasion.

Among the veterinarians in attendance were: J. H. McNeil of New Jersey; Maurice C. Hall of Washington; C. W. Eddy of Ohio; John F. DeVine of New York; C. J Marshall of Pennsylvania; Dr. F. B. Hadley of Wisconsin; and Drs. Campbell, Crowe, Smellie, Kempf, Welch, Blum, Morin, Gingerich, Hunt and Merillat of Illinois.

FLORIDA VETERINARIANS SEEK LEGISLATION

At the annual meeting of the Florida State Veterinary Medical Association held at the Aragon Hotel in Jacksonville a committee was appointed to draft a bill to regulate the practice of veterinary medicine in that state and to attend to the matter of introducing it into the legislature that will meet during this winter.

The following officers were elected: T. J. Mahaffy, Jacksonville, president; J. V. Knapp, Tallahassee, vice-president; and A. J. Shealy, Gainesville, secretary-treasurer. The next meeting will be held at Palatka in March in connection with that of the state sanitary association.

INDIANA STATE ANNUAL

The annual meeting of the Indiana Veterinary Medical Association will be held at the Claypool Hotel, Indianapolis, January 2-3, 1923. A large meeting is anticipated as questions involving the welfare of the veterinarians of that state are up for discussion. The officers of the association are: G. W. Gillie, Fort Wayne, president; W. B. Wallace, Marion, vice-president; J. L. Axby, Lawrenceburg, secretary, and J. W. Klotz, treasurer.

The Veterinary Situation in Roumania

By Dr. B. Tarkas, Chicago, Ill.

I AM very thankful to your editorial staff for the kind reception accorded me through the introduction from Dr. Adolph Eichhorn of the Lederle Laboratories of New York and very cheerfully comply with your request to write a few words for publication about the veterinary situation in Roumania.

The greater part of the Roumanian veterinarians are in the service of the government and the cities are compelled by law to employ veterinarians. The villages where advanced live stock breeding prevails employ veterinarians voluntarily. The government veterinarians administer the sanitary live-stock regulations of one or two districts, each of which include from 30 to 60 villages, and they also interest themselves with the breeding problems. The highly contagious diseases like foot-and-mouth disease, rabies, hog cholera, glanders, etc., which increased enormously during the war, take up so much of the time of the veterinarians that they have very little time for private practice.

Foot-and-Mouth Disease Greatest Menace

Among the contagious diseases, foot-and-mouth disease is the greatest menace, not only because the animals can not be worked and the cows do not give milk during the period of illness and quarantine, but also because most of the calves and some of the adults perish; and besides, the same individuals in many cases suffer from the disease twice in a single year.

In spite of the efforts of the veterinarians the disease could not be controlled on account of the fact that the people did not take quarrantine seriously (violation of the laws by dealers who peddled animals from infected yards, etc.) and the disinfections in many instances were not properly done. Discouraged with this attitude of the people the veterinarians for a time paid no attention to the official report coming from village officials, but finally owing to the seriousness of the situation the people themselves who had before shown antipathy towards sanitary regulations began to appeal directly to the veterinarians for strict quarantine orders and to personally control exact disinfection. Quite naturally, having from 30 to 60 villages to attend to, the veterinarians were unable to supervise the entire work.

Rabies Very Prevalent

Rabies is another disease that spread seriously during the war all over the war-ridden countries. The number of people bitten increased to such an extent that the Pasteur institute at Bucharest was unable to do all the vaccination work required and the government found it necessary to establish another laboratory at Cluj (Transylvania). At present both institutes are crowded with people bitten with rabid dogs. Because of lack of experience of some of the employes and also because some patients arrive too late, deaths from rabies are not rare.

In June, 1922, I had occasion to observe an outbreak. A peasant brought me an ox that was drooling at the mouth, slight elevation of temperature, and inappetence. At first I thought it was foot-and-mouth disease, but finding no vesicles in the mouth I did not make a diagnosis at the time. While making the examination a second and then a third ox came from the same village. These two were bellowing continuously, holding the heads upward and the eyes were turbid. Tied to a pile of wood they tried to climb over it. While pondering over the diagnosis, a message came from the same village that several other animals were showing the same symptoms. I now established the diagnosis of rabies. Seven cows died within the next two or three days. The cause was traced to a dog whose carcass was found lying in the pasture. The herdsman reported that the carcass had been lying there about three months.

No Antihog-Cholera Serum Produced

The control of swine diseases is not very successful because there are no laboratories to produce antihog-cholera serum. I recall one owner of a valuable herd who went all the way to Hungary for serum and on finding that exportation was prohibited smuggled the necessary amount across the border.

Glanders

The eradication of glanders occupies much attention from the government veterinarians. The government supplies the mallein which it obtains from Paris.

Meat Inspection

Meat inspection is, however, the most important veterinary work in the Transylvanian

Now turn to page 93

Anthelmintic Medication for Parasites in the Lumen of the Digestive Tract

By Maurice C. Hall, Associate Editor.

Cont'd from December

TREATMENTS FOR SHEEP AND GOAT PARASITES

Stomach worms: Copper sulphate, one per cent solution in water, to animals fasted overnight; if used as a routine repeated treatment, animals need not be fasted. For sheep, 100 cc. (3.5 fluid ounces), for lambs, 50 cc. (1.75 fluid ounces). No purgation. Worms pass for four days. Efficacy, 93 per cent as indicated on the basis of worms passed and worms present postmortem. As noted in connection with stomach worms in horses, many of the worms killed by anthelmintics in the stomach are digested there, and the check animals in stomach worm experiments on sheep indicate that many of the worms killed are digested and therefore not accounted for in the examination for worms passed; it seems certain that the copper sulphate treatment is much more than 93 per cent effective. It falls short of 100 per cent efficacy, but is probably close to 99 per cent effective. The doses which are given here may be repeated at intervals of three to four weeks throughout the year in places where stomach worms are prevalent, with decided benefits in the way of increased production of mutton and wool. The one per cent solution may be made up at the rate of one gram of powdered blue crystals of copper sulphate to 99 cc. of water, or, for large amounts, at the rate of one-fourth pound of copper sulphate dissolved in one pint of boiling water, with cold water added to this solution to make a total of three gallons, enough to dose 100 adult sheep and allow 10 per cent for waste.

Another treatment consists in using a solution containing one per cent copper sulphate solution and one per cent by weight of snuff or powdered tobacco. The tobacco is steeped in the water overnight and the copper sulphate then added. The dose and method of treatment is the same as for the copper sulphate treatment given above. The reported efficacy is 90 to 100 per cent; 90 is probably too low as noted above.

Carbon tetrachlorid in doses of 12 to 48 cc. in 60 cc. of castor oil has been found to remove all the stomach worms from infested sheep. The dose which is most satisfactory from the standpoint of efficacy and safety has not yet been ascertained.

A treatment reported favorably from South Africa consists in the use of a mixture of sodium arsenite (testing 80 per cent arsenious oxid), one part, and copper sulphate, four parts. Doses: Animals two to four months old, 0.18 gm.; four to six months, 0.25 gm.; six to ten months, 0.375 gm.; one year old, 0.5 gm.; two years old or older, 0.625 gm. This is given as a powder. Withhold food and water the afternoon before dosing; dose next morning; feed in afternoon; feed and water the next morning. Treatment may be repeated the day after the first dose, allowing feed the afternoon after the first dose, dosing the next morning, and feeding that afternoon, but allowing no water until the morning following the second treatment.

Hookworms: The solution of copper sulphate and tobacco administered in the same dose and manner as for stomach worms. Efficacy, on the basis of reported experiments (Guberlet), 100 per cent.

Carbon tetrachlorid in doses of 15 and 30 cc. in castor oil and in doses of four and eight cc. in capsules removed all the hookworms from four infested sheep. Worms pass for two days. Further investigations are necessary to ascertain the minimum effective dose and the best mode of administration.

Oil of chenopodium, one fluid dram (3.75 cc.) in five ounces (160 cc.) of milk has been found to remove about two-thirds of the hookworms from sheep. Worms pass for two days.

Nodular worms: No well established treatment. Carbon tetrachlorid in doses of 15 to 48 cc. removed from 3 to 100 per cent of the worms present. Further investigation necessary. Larval worms in nodules probably not amenable to any known treatments.

Small trichostrongyles (Nematodirus, Cooperia, Ostertagia, and Trichostrongylus): Carbon tetrachlorid in doses of 12 to 48 cc. removed 82 per cent of these worms from four

infested sheep. From two other sheep it removed 3 to 27 per cent. From two other sheep doses of 4 and 12 cc. apparently failed to remove any trichostrongyles of the genera named. This is the only drug yet reported as capable of removing these worms, but further investigations are necessary to determine the best dose and mode of administration. The drug seems especially effective against species of Nematodirus, these being blood-sucking forms and distinctly pathogenic.

TREATMENTS FOR SWINE PARASITES

Ascarids: Fast 24, preferably 36, hours. Oil of chenopodium, one fluid dram (3.75 cc.) in or immediately preceded or followed by two fluid ounces (ca. 64 cc.) of castor oil for animals weighing 100 pounds (45 kilos). Diminish dose of chenopodium for smaller animals in proportion to weight, but use at least one ounce of castor oil; for larger animals the dose of castor oil should be increased, up to four ounces for very large animals. Chenopodium requires adequate purgation to offset its constipating and toxic action. In default of castor oil, which is bulky, it has been suggested that salts be given in soft feed of some sort three hours after treatment; no reports on the results of such treatments are available. Worms pass for two days. Efficacy, approximately 100 per cent.

Santonin has for many years enjoyed the reputation of being the best ascaricide known, but critical tests show that in single therapeutic dose it is distinctly inferior to chenopodium for removing ascarids from dogs and swine. To develop its greatest efficacy it must be given in small doses repeated daily, and given in this way it appears to exert a cumulative action on the worms and is quite effective, a smaller total being more effective than a single dose larger than this total. Santonin and calomel, equal amounts, in doses of four to eight grains each, are commonly recommended for removing ascarids from swine, but chenopodium is better.

Dosing swine is difficult. If capsules are used, care must be taken to avoid placing them in the retropharyngeal recess or the trachea, as in either place they will cause serious or fatal results. If the capsules are placed only on the back of the tongue, swine usually eject them from the mouth sooner or later. It is feasible to use a speculum and pass a stomach tube; a horse catheter may be used as such a tube. Swine are noisy, dirty, hard to catch and hold, and can bite viciously, and these things, as already noted, account in part for the demand for "something to put in the feed" to remove worms from swine. However, experiments indicate that drugs placed in the feed are wasted for the most part, the anthelmintic efficacy falling off very seriously or being entirely lost.

TREATMENTS FOR DOG PARASITES

Ascarids: Fast overnight. Oil of chenopodium, 0.1 cc. per kilo (10 cc. to a 22-pound dog), in capsule, immediately preceded or followed by 32 cc. (one fluid ounce) of castor oil. Purgation important. Febrile conditions, such as distemper, or mange are contraindications for treatment. Dog is usually salivated and may vomit, but drug is usually effective in spite of vomiting. Worms pass up to seven days, coming away after treatment as follows: First day, 82.7 per cent; second day, 7.7 per cent; third day, 4.3 per cent; fourth day, 3.1 per cent; fifth day, 1.5 per cent; sixth day, 0 per cent; seventh day, 0.5 per cent. Efficacy, approximately 100 per cent.

Another treatment: Fast overnight. Carbon tetrachlorid, 0.3 cc. per kilo (3 cc. for 22-pound dog), in hard capsules. No purgation; castor oil especially contraindicated. Care must be taken not to get the drug into the lungs. Efficacy 80 to 100 per cent. This drug is less effective for removing ascarids from dogs than is chenopodium, but it is also safer (therapeutic dose has an indicated safety factor of 53) and is preferable in the cases of patients that are very young, very old, feeble, or suffering from mange or febrile conditions. In general the drug can be given with safety to pups two weeks old.

Carbon tetrachlorid does not appear to be a very satisfactory anthelmintic for use in removing worms from swine. It is fairly effective in removing ascarids when given at a dose rate of 0.6 cc. per kilo, but this dose is much more bulky than that of chenopodium and is less effective. Furthermore, carbon tetrachlorid has a much smaller margin of safety for swine than for carnivores and poultry.

Stomach worms (Arduenna strongylina, Physocephalus sexalatus and Hyostrongylus rubidus): Oil of chenopodium as for ascarids. This drug mixed with castor oil and milk and given in feed removed about 60 per cent of the Arduenna present in an experiment animal, judging the efficacy from the worms passed and those left postmortem; worms passed for four days. As noted in regard to stomach worms

in horses and sheep, probably some worms were digested after being killed and the drug was probably distinctly more effective than the fecal findings indicate. With this evidence as to the efficacy of the drug when given in feed, it seems safe to assume that it will be more effective when properly administered. The stomach worms which are protected by burrowing in the mucosa or which are embedded in a thick mucous coating may be and probably are protected from the action of anthelmintics.

Nodular worms: No satisfactory treatment known. The chenopodium treatment as given for ascarids will remove some nodular worms.

Thorny-headed worms: No effective treatment known as yet. Turpentine and copper sulphate have each been recommended, but we lack experimental evidence in regard to these drugs. Oleoresin of male fern has been found effective in a case of human infestation with one species of thorny-headed worms, not the swine species, and would be worth trying against the swine parasite.

Tapeworms: Many writers give treatments for tapeworms in swine. For practical purposes, swine are not infested with adult tapeworms. The few reported cases of these worms in swine apparently deal with tapeworms of sheep or other animals, these tapeworms having been swallowed by swine in eating the intestines of the true host, or with tapeworms of animals other than swine which have undergone partial development in swine but have remained sterile in the unusual host.

Another treatment: Where there is inflammation of the digestive tract, santonin may be the drug of choice as it is not a gastro-intestinal irritant. Carbon tetrachlorid would be the next choice under these conditions, chenopodium being distinctly irritant. Santonin should be given in doses of 0.5 to 1 grain daily, with an equal amount of calomel, for several days. Give early in the morning and do not feed dog for two to three hours after treatment.

Hookworms: The carbon tetrachlorid treatment as outlined above for ascarids. Worms pass for four days. In a series of experiments with various drugs, hookworms passed as follows: First day, 74.1 per cent; second day, 15.7 per cent; third day, 7.4 per cent; fourth day, 2.8 per cent.

Whipworms: Santonin, 0.5 to 1 grain, with an equal amount of calomel daily, two to three hours before feeding in the morning, for one week. Suspend treatment for one week, and then repeat for a week. The results should be checked by examination of the feces for worms passed and for eggs persisting, to make sure of the results, but this makes a fairly satisfactory routine treatment where such examinations cannot well be made. The difficulty in removing whipworms is due to the fact that drugs do not always enter the cecum after passing the ileo-colic valve. Even relatively feeble anthelmintics will remove whipworms when they enter the cecum. Entrance into the cecum can be ensured to some extent by using repeated doses or very large doses. For repeated doses a non-irritant drug, such as santonin, is distinctly indicated. If large doses are to be employed, it is advisable to use a drug of low toxicity and with a high safety factor, such as carbon tetrachlorid. Carbon tetrachlorid in one large dose, 1 cc. per kilo, will sometimes prove effective in removing whipworms. Strong animals will tolerate this dose or much larger doses, but it is inadvisable to use large doses of anthelmintics in the case of old, very young, and sick or weak animals.

(Turn to page 78)

"PTOMAINE" POISON IN FOWL

By H. H. Lehman, Ashland, Ohio.

Ptomaine poison is commonly spoken of as Limber neck by the poultryman because the fowl is unable to hold its head. It is a disease that affects fowls very suddenly and in many cases proves rapidly fatal.

The cause is toxic substance eaten with decomposed flesh, generally filled with maggots. The latter are eaten very readily by the fowl and act as carriers of the posionous products. Decomposed vegetables, such as spoiled, canned corn, beans, etc., maggots found in the manure heap, and stagnant. drinking water are also causes. Because of the influence of hot weather on the putrefaction of meat and vegetable substances, ptomaine poisoning occurs chiefly in mid-summer, especially where fowls have free range. Where there is outbreak in a flock, it may start from the carsass of a bird lying in tall weeds or grass unnoticed. In a few days the carcass is filled with maggots which a few fowls eat. Such chickens may become sick, die in a few days, and in turn, decompose and become the means of poisoning a great number of the flock.

Frequently the keeper is responsible for the beginning of the disease by killing some small animal, such as a rat, skunk or weasel and

thoughtlessly throwing it where the chickens have access to the decaying carcass; in this way one such carcass may be responsible for killing many more fowls than if it had lived. A piece of meat carried about by the dog and becoming putrefied might also be the source of trouble.

Symptoms

The disease is sometimes so rapidly fatal that symptoms are scarcely noticed before the fowl dies but where the illness lasts for some time there will be extreme prostration, the head and neck hang limp (limber neck), the wings are dropped and frequently there is diarrhea. The feathers often become loose and drop or are easily pulled out (this, by some, is said to be a very important symptom). The bird may lie on its breast unable to rise and occasionally flutter, and in some cases dies without a struggle.

Where an autopsy is held the maggots are found in the crop and are generally supposed to be the real cause of the disease. Such is however not the case. They are simply carriers of the poisonous substance or chemical produced by decomposition and putrefaction.

Treatment

Cases of ptomaine poison as a rule do not yield well to treatment, unless the same can be given at the very onset of the disease, but at the best it is a serious trouble and proves fatal in a large percent of cases. We have found that giving from 5 to 10 drops of turpentine and from 1 to 3 drops of tincture nux vomica in a teaspoonful of castor oil, three or four times a day is of some benefit. Also for general treatment for the flock dissolving an ounce of hyposulphite of soda in each gallon of their drinking water is indicated, but I wish to repeat again that the important thing to do is to find and remove the cause and order a general cleaning up of the premises.

An Outbreak of "Trembles" or Milk Sickness*

By Robert Graham and I. B. Boughton, Urbana, Illinois
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THE occurrence of milk sickness in man and "trembles" in cattle or other domestic animals has been frequently recorded in the early history of Illinois. McCall reported the disease as early as 1830, while in 1861 Mendenhall described the disease in the Chicago Medical Journal. In fact there were frequent reports of its occurrence in Ohio, Illinois, Indiana and other Middle Western and Southern States during the pioneer days and it was regarded as one of the most serious diseases of man and beast.

Relations of Milk Sickness and Trembles

The clinical relation of milk sickness and trembles is implied in the history of certain outbreaks where persons became ill from drinking milk from affected cattle or cattle that had ingested Eupatorium agertoides (urticaefolium), commonly referred to as white snake root. Evidence of the toxic character of the plant for man is suggested by the personal experience of Mr. William Jerry of Madison County, Illinois, who describes an illness from which he suffered in 1867 following the eating of Eupatorium agertoides prepared as greens.

In recent years the disease has been recognized in Illinois at or near the towns of Minooka (1906), Beacher City (1914), Fancher City (1914), Hazel Dell (1918), Paxton (1922) and Greenfield (1922). Of the two outbreaks of the disease in Illinois coming to our attention this year, one occurred in cattle only, while in the outbreak to be described later children, horses and cattle were affected.

Illinois Vet. Med. Assn. Dec. 6, 1922.

Our interest in milk sickness or trembles was stimulated by inquiries from practitioners of human and veterinary medicine relative to the cause of the disease. Following the work of Moseley on milk sickness the poisonous character of Eupatorium agertoides (white snake root) was generally accepted for many years. In 1908 Crawford as the result of certain experiments reported the apparent non-poisonous character of the plant, followed a year later by the work of Jordan and Harris who pointed out the possible relation of Bacterium lactimorbi to the disease. Notwithstanding these various theories relative to the etiology of the disease, one is impressed with the work of Marsh (1917), wherein he summarizes the results of certain feeding experiments as follows:

*Read before the Fortieth Annual Meeting of the Illinois Vet. Med. Assn. Dec. 6, 1922.

"(1) Eupatorium urticaefolium has for many years been considered by many people as the cause of milk sickness, or trembles, in cattle.

"(2) Experimental work shows conclusively that the plant is toxic, and produces a definite line of symptoms bearing a close resemblance to those considered characteristic of trembles.

"(3) Probably many, possibly most, cases of trembles in cattle and sheep are due to poisoning by E. urticaefolium.

"(4) Under the term 'milk sickness,' or 'trembles,' are probably grouped at least two distinct things: one poisoning by E. urticaefolium and the other a bacterial disease."

In the same year (1917) very similar results were reached by Curtis and Wolf of the North Carolina experiment station. Sheep were used in their experiments and several fatal cases of the disease were described.

The Paxton Outbreak

In connection with a spontaneous outbreak of milk sickness in children, and trembles in cattle and horses, occurring near Paxton, Illinois, during August and September, 1922, certain preliminary feeding experiments were projected to determine, if possible, the relation of white snake root, if any, to the diseases in question. The fresh plant, the expressed sap of the fresh plant, the residue of the alcoholic extract of the fresh plant, as well as the watery extract of the fresh plant (prepared by the Division of Animal Nutrition) were fed to experimental animals.

The results of these experiments, while incomplete, clearly suggest that Eupatorium agertoides in a fresh state, as well as the residue of the alcoholic extract and a concentrated watery extract may under certain conditions prove fatal when ingested by susceptible experimental animals. The symptoms observed in some instances resembled the clinical syndrome observed in spontaneously affected animals. Though the character of the poisonous agent is not suggested in any of the experiments conducted to date, there is evidence to suggest, however, that a profound intoxication in horses and sheep, as well as a milder type of the disease in cattle accompanied by muscular tremors, may be specifically related to the ingestion of white snake root under experimental conditions. If susceptible animals consumed similar amounts of the plant under farm conditions it is presumed that illness or death might result.

Description of White Snake Root

White snake root (Eupatorium agertoides) is a slender, erect perennial herb which grows from one to four feet high. The leaves are opposite, broadly ovate, pointed, with sharply toothed or serrated edges. They are three to five inches long, thin, and have long petioles (leafstalks). The white flowers appear late in the summer and are composed of compound corymbs of from eight to thirty flowers. Growth generally occurs in wooded pastures, although it is claimed that the habitat of the plant is not necessarily restricted to shaded places. One species of Eupatorium (perfoliatum) may be mistaken for the poisonous snake root. It grows in similar localities, but is readily distinguished from Eupatorium agertoides. The leaves are long and narrow without petioles and united around the stem.

In August of extremely dry years the plant thrives and during that month and through September and October cases of milk sickness or trembles may occur. Often when the pasture is dry, snake root is green and during blossoming time it is sometimes referred to as "white top." Cases of milk sickness, as such, if occurring out of season are supposedly traceable to ingestion of milk products, such as cheese, or the meat of affected animals. One outbreak of trembles in cattle was reported as early as July and it seems possible that the disease may exist throughout the summer months in domestic animals.

History of Paxton Outbreak

On a farm near Paxton, Illinois, (August, 1922), trembles was recognized in two horses by Dr. Alford and Dr. Aulgar. Chronic cases of the disease were also suspected in cattle. The disease in the horses terminated fatally in 24 to 48 hours after symptoms were observed. Affected animals were unable to stand and suffered from profound weakness and paresis of the pharynx. Rapid shallow respiration and spasmodic muscular tremors were noted. In view of the fact that a serious outbreak of trembles in cattle, as well as two cases in mature persons diagnosed as milk sickness, had occurred on this premise in previous years, the syndrome in horses and its relation to the white snake root was suspected. A few days later, upon examing the pasture in which the horses and cattle on the farm had been feeding, the vegetation was found dry or dead with

the exception of the weed commonly known as white snake root. This plant during the latter part of August following a dry period of six or seven weeks was present in abundance in full bloom and in a green and succulent state. The identity of the plant was determined through samples submitted by Dr. Alford, as well as specimens gathered by the writers. It was very evident that the cattle and horses had been eating this weed as considerable quantities of the flowers and leaves had been bitten off. The milk and butter for family use were obtained from cows which had been feeding in this pasture. Two children, ages 16 and 3 respectively, suffered from an illness during the latter part of August and September.

Dr. E. C. Parks, M. D., of Paxton, kindly furnished the following description of the illness, which he and Dr. Clay, M. D., of Hoopeston, recognized as typical milk sickness:

Case 1. 16 years old. Illness began with one or two days of languor and malaise, followed by obstinate constipation, scanty urine, dry mouth and tongue (which carried a heavy white coat), dry and sallow skin, cold extremities, subnormal temperature—96 to 97.7 F.—nausea and vomiting. There was pain described as a burning sensation in the stomach and bowels. The breath of the patient had a sweetish, pungent odor. There was more or less stupor for six or seven days and slight delirium during the seventh and eighth days of the illness, at which time the first bowel movements were obtained following seven or eight days of obstinate constipation. High enemas and frequent large doses of castor oil were used.

Convalescence began about the tenth day when the temperature rose to 98.2. Mental condition began to clear, tongue and mouth became moist, appetite returned, food and drink were retained without nausea or discomfort. The patient at this time (December 1) is still very weak and debilitated having lost 18 or 20 pounds in weight during the illness.

Case 2. 3 years old. On the twelfth day of the illness of patient No. 1, Case 2 became ill. It was learned that she had been drinking freely of the milk from the cows which had been feeding in the wooded pasture, and was suffering from nausea and vomiting. General debility, malaise and constipation were noted. Complained of pain in stomach and bowels, extremities were cold and temperature subnormal; tongue coated white, breath with sweet and pungent odor much the same as that of her sister.

After administering several tablespoonsful doses of castor oil, bowel movements were secured and it was noted that there were grape seeds and pulps present in them, which was at that time considered the probable cause of her illness; but after the first day they were no longer present in the stools, and there was again a tendency toward constipation, accompanied by extreme weakness and debilitation, quite profound stupor and continued pain and discomfort in stomach and bowels, evidenced by groaning and thighs flexed upon the abdomen. The skin became dry and sallow, there was marked thirst but all food was rejected. These symptoms predominated for five or six days, when about the eighth day of her illness they began to subside and convalescence was established. Since this time she has gradually gained strength until at this time she seems quite well on her way to recovery, but still very weak.

About the same treatment was administered in both cases, which was absolute rest in bed, quiet, frequent cleansing baths, followed by alcohol rubs and careful feeding.

Medical treatment was stimulative and laxative, emulcient and refrigerating drinks. Castor oil as indicated to keep up free elimination of bowels, frequent small doses of alcohol and intestinal antiseptics.

This brief report is submitted with the view of reviving interest in the disease from an experimental and practical standpoint. The causative factor, or factors, whether of bacterial or plant toxic origin are worthy of further study. It is obvious that we are indebted to Drs. Alford, Parks and Aulgar for bringing this outbreak to our attention, and we hope that in so far as possible further outbreaks of this disease, should any occur, may be made the subject of further investigation.

"Education" says a contemporary "Has shown us where we are at." True, and now all it has to show is where we came from, what we are here for, and where are we going.

It is not generally known that in the salmon industry Columbia region horses are used to draw in great seins containing tons of fish. The animals wade into the stream up to their necks and the salt water causes diffuse depilation.

The Arsenicals*

By N. S. Mayo, Chicago, Ill.

WHILE metallic arsenic cannot be used medicinally its various salts and organic combinations have long been recognized as efficient agents for the treatment of anemia, leukemis, debility, skin diseases, chores, malaria and most conditions where tonic treatment is indicated. The actions and uses of the simpler arsenicals are so well established that only the newer forms will be considered in this paper and particularly those that have not as yet been extensively used in veterinary medicine.

The great objection to the well-known arsenicals has been their toxicity. To obviate this objection several relatively new arsenicals have been developed.

Sodium Cacodylate—Atoxyl

Of the less toxic arsenicals, sodium cacodylate is one most used at present in veterinary medicine having been brought prominently before the profession by Dr. Quitman. Sodium cacodylate is so well known it will not be discussed here.

Sodium arsenilate, introduced under the trade name of atoxyl, is a colorless and odorless crystalline powder, with a cool faintly saline taste. It contains approximately 35% of metallic arsenic. Dr. S. Thomas in 1905 first introduced atoxyl for the treatment of trypanosomic diseases and later Robt. Koch treated sleeping sickness on a large scale with atoxyl with fairly good results and Uhlenhuth in 1906 used atoxyl in treating dourine of horses. Much later Bergman and Covault of Iowa reported good results from the use of atoxyl in Strongylidosis of horses.

While curative action was obtained with atoxyl in the treatment of human syphilis it was necessary to use doses that closely approached the toxic points.

Winslow gives the dose of atoxyl for horses at from IV grs. to XV grs. once daily or grams 1-3-(15 to 45 grs.) once in ten days.

Salvarsan

While many other arsenic compounds were produced the next decided improvement was the introduction of dioxydiamido-arseno-benzol dihydrochloride under the trade names of "606" or "salvarsan." This preparation is now officially known in America as Arsphenamine.

Arsphenamine quickly proved itself to be a more efficient agent for the treatment of human syphilis. The objections to arsphenamine are that solutions must be very carefully neutralized with sodium hydroxide and the solutions must be administered with a gravity burette using 120 cc. of water for each 0.6 gram of arsphenamine.

Neo-Salvarsan

Some ten years ago Erlich developed another new arsenical Dioxy-diamino arseno benzene methylen sulphinate of sodium that was introduced to the medical profession under the trade name of neo-salvarson, now officially known in America as neo-arsphenamine. Other arsenical combinations have been developed such as silver and antimony arsphenamines, but in human medicine the two outstanding arsenicals are Arsphenamine and Neo-Arsphenamine.

The advantages of neo-arsphenamine are that it is quickly soluble in a small amount of water (the human dose 0.9 grams in 5-10 or 20 cc.) neo-arsphenamine is much less toxic than the arsphenamine. The relative value of the different arsenicals may be stated approximately as follows:

The curative dose of atoxyl is to the toxic dose as 1 to 2.

The curative dose of arsphenamine is to the toxic dose as 1 to 58.

The curative dose of neo-arsphenamine is to the toxic dose as 1 to 200 or less—1-400.

All arsphenamine and neo-arsphenamine supplied in the United States is tested on animals for toxicity by the U. S. bureau of public health. The minimum standard of toxicity for arsphenamine is 100 mg per kilo of body weight, for neo-arsphenamine, 200 mg per kilo of body weight. All animals must live.

Both arsphenamine and neo-arsphenamine are delicate chemical compounds and are only supplied in hermetically sealed glass ampules. The arsphenamines should be dissolved immediately on opening the ampules in distilled water free from chemical impurities. They are best given intravenously and slowly.

In human medicine the arsphenamines are used mostly in the treatment of syphilis and malaria. These arsenicals are particularly destructive to animal parasitic infections, due to spirochetes, trypanosomes and pyroplasms. Recently Dr. Raiziss of the Dermatological Research Institute has demonstrated that the arsphenamines also have a decided bactericidal action.

* Read before the Ill. State Vet. Med. Assn., December 6, 1922.

The arsphenamines have been used very little in the treatment of animal diseases. Dr. Curt Krocher reports negative results from the use of arsphenamine in canine distemper.

Dr. James Gregg who had charge of a British remount depot during the early part of the war, states that 95% of the deaths in army horses are due to pneumonia, and in giving the treatment prescribed by British army regulations says, "In chronic cases they must use dimethyl arsenate, an imitation of '606'" (arsphenamine).

Stange and Szulewsky influenced by the good results obtained by Bochberg, used atoxyl in the treatment of equine influenza. They injected intravenously 0.3 gram atoxyl in 10 cc. warm water. The following day, the temperature fell, the pleuritic exudate diminished and diuresis was increased. Recovery was rapid. The same authors also injected 0.3 to 0.4 grams intravenously in acute cases where there was a high temperature, nervous excitability and muscular tremor. They report complete success whereas other animals symptomatically treated died.

Dr. Raiziss who is unquestionably the best authority in America on the arsphenamines, in a recent letter regarding the use of these in veterinary practice, says:

Posology

"The best procedure would be to adopt the human dose in the treatment of animals. This would be about 10 mg. per kilo of body weight of the animal in case of arsphenamine and 15 mg. in case of neo-arsphenamine." A hog, for instance, could be treated with 0.6 of arsphenamine or 0.9 of neo-arsphenamine, while a horse could receive about four to six times as large a dose as the human. Calculations could be easily made when the weight is known. Extensive experiments which I have performed on rabbits have indicated that the dose per kilo body weight as mentioned above would be tolerated splendidly without the slightest irritation of the kidney. If you will adopt the dose per kilo body weight as outlined, it will make the work perfectly safe. Later on the doses could be increased."

Therapeutics

From our present knowledge of the newer arsenicals they should prove of value in the treatment of the following animal diseases: swamp fever, surra, mal de caderas and chronic cases of pneumonia, equine influenza, periodic opthalmia, Texas fever and possibly in abortion disease, blackhead in turkeys and in chronic systemic infections of a low type. Possibly in so-called chronic hog cholera and also in the treatment of animal parisitic infections such as sclerostomiasis and larvel forms of other helminths.

The arsenicals are eliminated by all excretory channels, but mostly in the feces, milk and urine. In treating animals precautions should be taken to prevent poisoning of people that might consume the milk, or other animals that might have acess to the milk or excreta.

It has been demonstrated that considerable quantities of arsenic remain in the livers of animals treated with the arsenicals. Whether arsenic would remain in the livers of meat producing animals in sufficient amounts to render them dangerous as food is an important point to be determined.

It is interesting to note that the finest quality of arsphenamines produced in the world are now made in America. The Dermatological Research Laboratories of Philadelphia soon after the outbreak of the European war began to manufacture arsphenamine and neo-arsphenamine and supplied the United States government with a preparation superior to the imported and at one-third the pre-war cost.

We believe that the newer arsenicals are the most promising medicinal agents for the treatment of certain animal diseases, and that they may prove of great value in preserving the animal life of our country.

AUTOHYSTEROTOMY—AUTOMUTILATION

A mouse whose status is that of a pet at the Ohio State penetentiary has recently done the usual thing of performing cesarean section upon itself and delivering a litter of four. Dr. J. F. Baldwin who vouches for the truth of the report raises the question: "Is medical science entitled to the credit for accomplishing birth by cesarean section, or does that honor rightfully belong to Dame Nature herself?" The report goes on to say that the wound healed and the mouse lived, and later upon being killed and examined at the research laboratory of the Ohio State University medical school it was found to have suffered no ill effect from the automutilation.

Wapakoneta, Ohio. W. E. Martin.

The Respirations of Fowls

By B. F. Kaupp, Raleigh, N. C.
Professor of Poultry Science, North Carolina State College.

THE character, volume, and frequency of respirations is a factor in the clinical study of disease.

Our aim has been to study the normal frequency of respiration in the average sized cock and hen, their character and depth, and the length of the expiratory as compared to the inspiratory movement.

Experimental Methods

A human size pneumograph was found to be satisfactory, although we had one made one-half this size which we called "fowl size." The movements were recorded on the smoked drum of a kymograph.

The Kymograph

The improved kymograph shown in Figure 1 consists of an aluminum drum (1) revolved by clockwork. The drum slides upon a brass sleeve in bearings 1.5 c. m. deep and is held at any desired height by a spring clip (2). The sleeve ends in a friction plate, which rests on a metal disc driven by the clockwork. The sleeve and friction plate revolve about a steel shaft which passes through both the heavy plates containing the clockwork, and is securely bolted to the bottom plate. The clock work consists of a stout spring about 6 meters in length, driving a chain of gears. The speed is maintained by a fan (4) slipped on an extension of the last pinion shaft in the chain. Four fans of different sizes are used.

The Pneumograph

The pneumograph (5) is a closed rubber tube (6) distended by a spiral spring and fastened around the body of the fowl immediately in front of the legs. The pneumograph fits tightly so that it will expand and contrast as the individual breathes, but not so tight as to interfere with normal breathing. It is adjusted around the body of the bird at a point where the respiratory movements are the greatest. Inspiration changes the air pressure in the tube, and thus transmits them to a tambour, (7) which writes the respiratory movements on the smoked surface of the drum. The tambour is connected with a hollow tube through which the air waves reach the rubber membrane. At right angles a piece of aluminum transmits the motion of the membrane to the writing lever. The axle of the writing lever is held in a yoke, the distance of which from the fulcrum to the lever is readily adjusted. The rubber membrane (8) is not tied, but is held in place by a removable ring. A hollow tube (9) and stop-cock (10) connect the tambour and pneumograph. The drum is covered with a paper with a smooth white surface. After adjusting the paper it is either smoked with gum camphor or by aid of a broad oil wick lamp.

EXPERIMENTS AND ILLUSTRATIONS DISCUSSED

Experiment 1. The pneumograph was adjusted rather tightly as above related, but not so tight as to make breathing difficult. The bird, a S. C. Rhode Island Red capon of about ten pound weight, was breathing 16 times per minute.

Experiment 2. The pneumograph was adjusted as in Experiment No. 1. The bird used this time was a S. C. Rhode Island Red cock of 8.5 pounds weight. It was breathing 19.2 times per minute.

Experiment 3. In this test a one-year-old Buff Orpington cock was used. The respirations were 21 per minute. This tracing is shown in figure 2, line 2.

The average number of respirations per minute in the case of the two cocks and one capon, all of similar size, was 18.6.

Experiment 4. In this test a Buff Orpington hen of average size was used. This hen breathed 69 times per minute. The space on the drum between the arrows represents the tracing of this hen's respiratory movements.

Experiment 5. In this test a one-year-old Buff Orpington hen was used. This hen breathed 60 times a minute. Line 3 of figure 2 represents the respiratory movements of this hen.

In figure 2, line a is drawn through the three inclines on the respiratory curves of cock 1 and hens 4 and 5. This part of the curve represents the expiratory movement. Line b is drawn through the opposite side of the curve and represents the inspiratory movement.

In a study of the curves on lines 1 and 3 it will be noted that they are practically uniformally equal. In the respiratory tracing of the cock, line 2, it is different. Aside from

being much slower, the inspirations are much longer than in lines 1 and 3, while the expirations are much shorter.

In line No. 1 the average measurement of each breath, or inspiration and expiration is 5.5 m. m. The inspiration and expiration are of the same length in most cases although it will be noticed that in a few instances the expiration slightly exceeds the inspiration.

In line No. 3 the average measurement of each inspiration and expiration is 6.12 m.m. The curves of inspiration and expiration for the most part are equal although in a few instances this time the inspiration is somewhat greater.

Fig. 1. Recording the Respiratory Movements of a Goose: 1. the recording drum; 2, spring clip to regulate height of drum; 3, body containing clock works to run drum; 4, speed fan; 5, the pneumograph inclosing a spring coil; 6, 7, the tambour over which the rubber dam 8 is held by a circular clamp; 9, a hollow tube bringing the tambour in connection with the pneumograph; 10, stop cock in tube leading from the pneumograph.

In line No. 2 the record of respiratory movements of the cock, the average measurement of each breath is 18.66 m. m. This shows how very much slower the male is breathing than the female. From this study it is apparent that the inspiration is much greater than the expiration in all cases.

Summary

The average length of breath of the hen as recorded on the kymograph in two trials is 5.81 m. m.

The average length of the breath of the cock as recorded on the kymograph is (one trial) 18.66 m. m.

The hens are breathing three times faster than the cocks. The inspiration and expiration in the hen are approximately equal. The inspiration in the cock is longer than the expiration.

RESPIRATIONS OF THE TURKEY

Experiment 6.—In this study a bronze turkey hen two years old and weighing twelve pounds was used. The turkey hen breathed 49 times per minute.

In figure 3, line 1, will be seen the kymographic record of the respiratory movements of this hen. The line a is drawn through the decline of the curve and is the inspiratory part of the curve, while b is drawn through the incline or expiratory part of the curve. The act of inspiration is longer than that of expiration.

Experiment 7.—In this study a one-year-old bronze turkey cock weighing twenty-five pounds was used. The turkey cock breathed 28 times per minute.

In figure 3, line 2, will be seen the kymographic tracing of this cock. It will be seen that the respiratory curves are longer in the

cock than in the hen. The space between the two arrows indicate the record of breathing for a space of thirty-two seconds. The respiratory curve is similar in the male to that of the female.

In line 1 the average length of each breath is 6.0 m.m. In line 2 the average length is 7.6 m.m.

Summary

The average length of breath of a turkey hen as recorded on the kymograph is 6.0 m.m.

The average length of breath of a turkey cock as registered on the kymograph is 7.6 m.m.

The hen breathed 1.7 times faster than the cock. In both the turkey hen and cock the inspirations are longer than the expirations.

The inspirations in the cock are only slightly deeper than in the hen.

In these studies it appears that the turkey as a class breathes very shallow.

RESPIRATION OF THE DUCK

Experiment 8.—In this study a white Pekin duck two years old was used. The Pekin ducks are of the larger breeds. The duck breathed 110 times a minute. This rapid respiration is accounted for by the fact that the day was quite warm and the duck is provided with down. Under such conditions breathing is accelerated to remove the excessive heat from the body, since excess is eliminated through respiration.

In figure 4, line 1, will be observed the kymographic tracing of the respiratory movements of this duck. The space between the arrows represents the respiratory movements of sixteen seconds.

It will be observed that the respirations in this duck as recorded by the kymograph are very short and that in most cases the inspirations are slightly longer than the expirations.

Line a is drawn through the declines of the curve and represents inspiration. Line b is drawn through the inclines of the curves and represents the expirations.

Experiment 9.—In this study a white Pekin drake two years old was used. This drake breathed 42 times per minute. Line 2 in figure 4 shows the kymographic tracing of the respiratory movements of this drake.

Summary

The average length of breath of the duck as recorded by the kymograph is 2 m.m.

The average length of breath of the drake as recorded by the kymograph is 11 m.m.

The duck breathes 2.6 times faster than the drake, and the inspirations are slightly longer than the expirations.

In the drake the inspirations and expirations are approximately equal.

Ducks as a class breathe rapidly and shallow.

RESPIRATIONS OF THE GOOSE

Experiment 10.—In this study a white Chinese goose two years old was used. This goose breathed at the rate of 40 times a minute. The kymographic tracing shown in figure 5, number 1, is the tracing of the respiratory movements of the goose. The space between the arrows is the tracing of 24 seconds. Line a is drawn through the declines of the curves and is inspiratory movement. Line b is drawn through the inclines of the curves and is the expiratory movement.

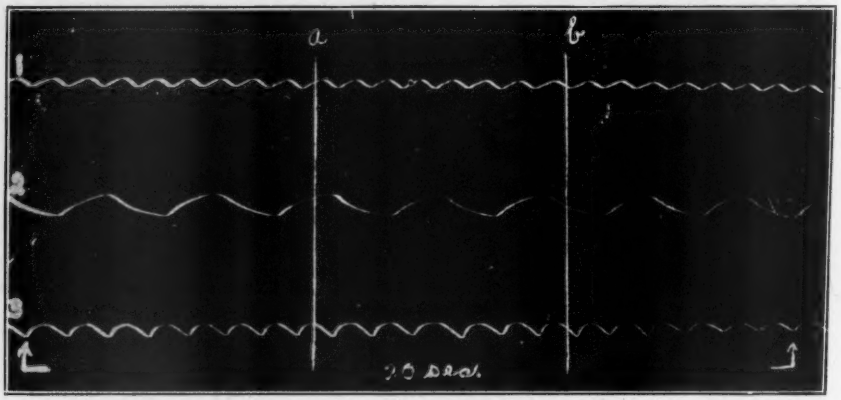

Fig. 2. Line 1, respiratory record of a one-year-old Orpington hen. The hen is respiring 69 times a minute. Line 2, respiratory record of a one-year-old Buff Orpington cock. The cock is breathing 21 times a minute. Line 3, respiratory record of a one-year-old Buff Orpington hen. The hen is breathing 60 times a minute.

Experiment 11.—In this study a white Chinese gander two years old was used. This gander was breathing at the rate of twenty times a minute. Line 2 of figure 5 is the kymographic tracing of the respiratory movements of this gander. The gander is breathing much slower than the goose. The expirations of the goose are much shorter than the inspirations. The length of expiration of the goose is 2.5 m.m., while the length of the inspiration is 8.0 m.m.

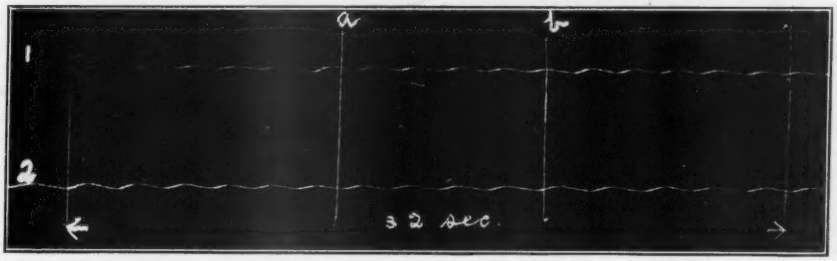

Fig. 3. Line 1, respiratory record of a one-year-old turkey hen. The turkey hen is breathing 49 times a minute. Line 2, respiratory record of a one-year-old turkey cock. The cock is breathing 28 times a minute.

Summary

The average length of breath of the goose as recorded on the kymograph is 10 m.m.

The average length of breath of the gander is 17 m.m.

The goose is breathing 1.7 times faster than the gander.

In the goose inspirations are over three times as long as the expirations.

In the gander the inspirations and expirations are approximately equal.

The gander breathes very deep, much deeper than the goose.

GENERAL SUMMARY

The average length of the breath of the four classes of domestic birds studied, namely, fowl, turkey, goose, and duck, is always shorter in the female than in the male.

The greatest differences in length of the breath between female and male of the same class occurs in fowls and ducks. Although in the turkey and goose the length of breath is shorter in the female than in the male, there is not such a great difference as in the case of the fowl and the duck. This is especially true of the turkey, in which case the length of breath in the female is 6.0 m.m. In contrast to this we have the duck and fowl with a difference in favor of the male of 9.0 m.m. and 12.8 m.m. respectively. In the goose there is a difference in length of breath of 7 m.m. in favor of the male.

In all four classes the female is breathing faster than the male of the same breed.

The greatest differenc in rapidity of breathing between the female and the male of the same class occurs in the fowl and the duck.

Although the rapidity of breathing in the turkey and the goose is greater in the female than in the male, there is not so much difference as in the case of the fowl and the duck. This is especially true in the turkey, in which the female is breathing only 1.7 times faster than the male. In contrast to this we have the duck in which the female is breathing 2.6 times faster than the male, and in the case of the fowl there is the extreme in which the female is breathing three times faster than the male.

The depth of breathing for both male and female shows the fowl and the goose are

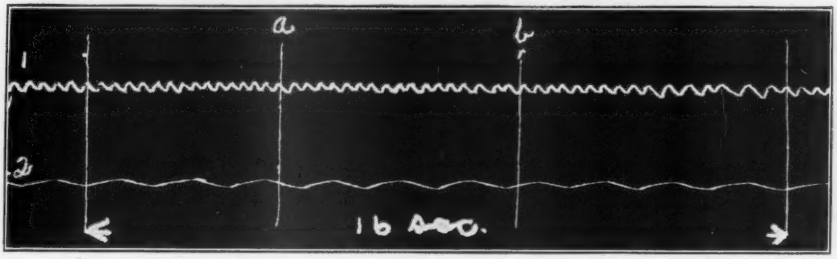

Fig. 4. Line 1, respiratory record of a one-year-old White Pekin duck. The duck was respiring 110 times a minute. Line 2, respiratory record of a White Pekin drake. The drake was breathing 42 times a minute. (The weather was warm, respriations with mouth open.)

breathing much more deeply than the duck and turkey.

The turkey is breathing more shallow than any of the other classes of birds.

In the females the inspiration is greater than the expiration in each case except in the case of the fowl. Here the inspiration and expiration are about equal.

In the case of the goose we have the greatest inspiration among the females, being three times greater in length than the expiration. The turkey is next with inspiration about 2.5 times the length of the expiration. Next is the duck which has an inspiration only slightly greater than the expiration, and fourth the fowl in which the inspiration and expiration are about equal.

In the males the inspirations in the cock and turkey cock are far greater in length than the expirations.

In the males the inspiration in the gander and the drake are approximately equal to the expirations.

The males breathe much deeper in every case except in the turkey, where there is not much difference as to the depth of breath.

FREQUENCY OF RESPIRATION OF ADULT BIRDS

The two main factors causing acceleration of respiration of the fowl are fright or worry, the slightest disturbance of a nervous fowl causing increased breathing, and, accumulation of body heat, as on a hot day requiring accelerated respiration to eliminate the excess temperature.

The respirations of adult fowls, including both hens and cocks, were taken in February and March when normal determinations should be possible. In each case the bird was allowed to become at ease and if it did not show reasonable friendliness it was discarded. The respirations were counted for one full minute and five counts were made, with results indicated in the following table:

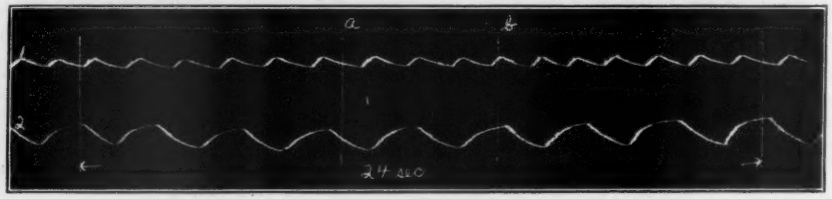

Fig. 5. Line 1, respiratory record of a two-year-old goose. The goose was breathing 40 times a minute. Line 2, respiratory record of a two-year-old gander. The gander was breathing 20 times a minute.

AVERAGE NUMBER OF RESPIRATIONS PER MINUTE

Breed—	Av. per Min. Cock	Hen	No. of Birds
Dark Cornish (large)	...	47.6	5
Dark Cornish (large)	29.8	...	1
White Plymouth Rock (large)	...	44.7	5
White Plymouth Rock (large)	16.6	...	1
S. C. Rhode Island Red (large)	...	37.0	15
Silver Penciled Wyandotte (large)	...	30.8	5
S. C. Rhode Island Red (large)	...	36.5	12
S. C. Rhode Island Red (large)	...	34.8	15
Barred Plymouth Rock (large)	...	36.0	10
S. C. Rhode Island Red (large)	21.8	...	5
Silver Campine (small)	...	40.5	5
Silver Campine (small)	21.4	...	1
Silver Spangled Hamburg (small)	...	37.6	5
Silver Spangled Hamburg (small)	20.8	...	1
Light Brahma (large)	...	28.6	5
Columbia Wyandotte (large)	...	29.7	5
S. C. Rhode Island Red (large)	16.4	...	2
White Wyandottes (large)	18.6	...	1
Barred Plymouth Rock (large)	...	...	10
White Wyandotte (large)	...	37.3	4
Buff Orpington (large)	...	...	10
Total and Averages	20.7	36.7	123

OBSERVATIONS

We find that the respirations of a bird on range are higher than those in coops.

The White Wyandottes had been placed in this house and run three days before respirations were taken, which no doubt, accounts for the rather rapid respirations.

Birds breathe faster in your hands than on the ground. This varies with the individual.

The number of respirations run very high about feeding hours. The respirations vary with the individual's temperament, some birds being more easily excited than others. The hens were very fat.

The above records are likely to be slightly above normal because a few of the birds had not been handled very much before the test.

RESUME

The number of respirations per minute was determined on 123 adult fowls of which 12 were cocks and 111 were hens.

These data indicate that the very large lympatic type or more sluggish birds, as the Brahma, breathe much slower than the medium size birds. In this case the average number of respirations per minute for Brahma hens is 28.6 or an average of 8 below the average of all.

The males consistently breathe slower than the females. In no case did the respirations run as high as 30.

The average number of respirations per minute, as here recorded, for adult cocks is approximately 20. The average number of respirations of the adult hens is approximately 36.

The Control of Hog Cholera In European Countries

By Dr. A. Eichhorn, Pearl River, N. Y.

During the recent trip through Europe, the writer had an opportunity to inquire as to the methods practiced in the control of hog cholera. This subject is especially of interest to American veterinarians inasmuch as it is generally recognized that hog cholera is the most important disease of swine and many veterinarians in the United States, especially in the corn belt, are mainly engaged in the control of this infection.

Hog cholera is prevalent throughout Europe. Especially where hogs are raised on a large scale the disease is more extensive than in those countries where hog-raising is not an important industry. The countries in which hog cholera prevails to a great extent and is responsible for great losses are Hungary, Jugo-Slavia, Spain and Portugal. Nevertheless in all other countries hog cholera is also being recognized as one of the principal infections of swine. The control measures adopted for the suppression of the disease vary in the different countries and are limited to compulsory reporting and prohibition of shipments of animals from the infected premises. Prophylactic vaccination has not as yet been adopted to any great extent in the various countries of Europe, although anti-hog cholera serum has been in use in many of the countries since its discovery in the United States.

Progress in the control of hog cholera by vaccination has no doubt been retarded in European countries as a result of the failure of adopting the simultaneous method of prophylactic vaccination and it is only very recently that in some of the countries they have adopted this form of vaccination and are now recognizing the superiority of this method over their previous efforts to control the disease with serum alone.

Tail Bleeding of Hyperimmune Hogs as Practiced in Europe

Ever since hog cholera serum has been employed, the general practice was to use it in herds where the disease has already existed. In such instances the serum was administered to the well and slightly affected hogs permitting them to remain on the infected ground in order

to bring them in contact with the virus during their state of passive immunity. It was assumed that the virus thus taken up would convert the passive immunity into an active form. The fact, however, that such is not always the case and furthermore that the control of the

Tail Bleeding of Hyperimmune Hogs as Practiced in the United States

infection is in herds where the disease has already existed would naturally greatly diminish the effectiveness of the vaccination. With the experience gained in hog cholera immunization in the United States, it is therefore not at all surprising that the form of vaccination practiced in Europe would not give the best results.

Final Bleeding of Hyperimmune Hogs as Practiced in Europe

The simultaneous vaccination as practiced in the United States is of course known to the authorities in Europe, but has not been adopted for the reason that some fear was entertained that the general use of the virus might be responsible for the spread of the disease and its continuous propagation. In many of the countries it is now recognized that the exception taken to the use of the virus is not well founded, inasmuch as the disease is very extensive, and besides, proper control could be exercisd in the virus to be used in connection with the simultaneous vaccination. Also in giving due consideration to the splendid results obtained with the simultaneous vaccination in the United States, this form of vaccination is now being introduced in several European countries, and inasmuch as the results obtained therefrom are so much superior to the serum alone treatment, there is no doubt but what the general adoption of the simultaneous treatment will soon be practiced in most of the countries of Europe. Heretofore in cases of outbreaks of hog cholera, the

animals were given the serum treatment and since in most instances the immunity produced was only of short duration they had in many cases to repeat the vaccination in two or three months, at each time considerable losses having been sustained. Such practice is not only costly but also discouraging to the hog owners.

In one fattening establishment in Hungary with a capacity of 65,000 hogs, the practice was to install the stock hogs when they weighed approximately 75 to 100 pounds. The establishment being infected with hog cholera virus, these animals contracted the disease within two or three weeks after installation. As soon as the disease appeared the animals received the serum treatment and were permitted to remain in the infected pens. Naturally the result was a considerable loss. It is known that some of the animals still retained a certain susceptibility to the disease and after the passive immunity had vanished and the animals were subjected to heavy exposures, they developed the disease. Thus, the losses in this fattening establishment from hog cholera were estimated to be annually between 20 and 25%. It is remarkable that under such conditions they have not taken advantage of the simultaneous vaccination of all hogs installed there, which would practically have eliminated the losses from hog cholera.—Veterinary Digest.

Final Bleeding of Hyperimmune Hogs as Practiced in the United States

Herd of Hogs in Spain immunized against Cholera with Serum and Virus from the United States

Comment: This article which many of our readers will recognize as a reprint from Veterinary Digest, the house organ of the Lederle Laboratories, is reproduced, at our own urgent solicitation, in order that the high state of refinement prevailing in antihog-cholera serum plants of the United States may become a matter of permanent record in the archives of the veterinary profession of this country during this period.

It is however only just to our European colleagues, who have never had to make apologies for their laboratories, that the discrepancies portrayed above may be but another reflection of the ravages of the war.—Ed.

Glandular Therapy With Special Reference to Animal Experimentation

By Walter E. King, M. D., and J. F. Shigley, D. V. M., St. Paul, Minn.

IT is the purpose of this paper to discuss the relation of gland therapy to a limited few, important diseases which occur in veterinary practice, and to present the results of animal experiments which show that certain synergistic, glandular preparations of therapeutic value in the treatment of such animal diseases may be standardized in the laboratory.

The present discussion is not a general consideration of the endocrine glands or of the various diseases which may be due to endocrine disfunction and deranged glandular balance.

Youth, sexual maturity, pregnancy, suckling, or lactation, and old age; that of the male into youth, puberty and old age. The important endocrine glands as they are related through their activity to the above periods of life may be grouped as is shown in Table 1.

The interdependent, delicately balanced, glandular life of the female is more complex than that of the male. This clearly accounts for the greater number of so-called sex diseases in the female as compared with the male. Freud and other authorities maintain that all nervous diseases in the human are referable to sex complex. Through the study of internal glands and their incretions, a relatively clear understanding has been formed as to the nature and cause of the great varieties of nervous disorders which exist especially in women.

TABLE 1
PHYSIOLOGIC ACTIVITY OF GLANDULAR LIFE

Youth	SEXUAL MATURITY		Pregnancy	Lactation	Old Age
	Female	Male			
Thymus Pituitary Thyroid Adrenal Pineal	Ovaries Adrenal Thyroid Pituitary	Testes Adrenal Thyroid Pituitary Prostate	Placenta Corpus Luteum Mammary Fetus	Mammary Ovaries Uterine Mucosae	Atrophy of all Glands of internal Secretion

IMPORTANT DISEASES IN WHICH GLANDULAR EXTRACTS ARE INDICATED

In veterinary practice there are a few conditions which are extremely common and difficult to treat. In the female, nymphomania and failure to conceive also retained placenta and delayed parturition, and in the male impotency, represent diseases which present serious therapeutic problems to the practicing veterinarian.

Failure to conceive as it occurs in the cow, has been intensively studied by Williams and others during the last few years. The results of their work, however, are not applicable at the present time to mares, sows and ewes. Sterility in these animals cannot be treated manually as in the cow.

Glandular Life and Gland Groups Involved

Careful study of the voluminous literature on endocrines, their inter-relationship, the various symptom-complexes referable to their disfunction, and the therapeutic use of glandular products furnishes a wonderful array of data. As the result of such study and for the sake of convenience, the endocrinous life of the individual animal may be divided into five distinct periods for the female, and three for the male. The glandular life of the female may be divided into the following periods:

The number of internal gland incretions (hormones) which influence the different glandular periods of life vary from two to six, or more. Practically all students of glandular therapy concur in the observation that there exists an intimate inter-relationship between the various glands of internal secretion. While it is probable that each of the endocrines may have one or more independent functions it is known that certain groups of the ductless glands are closely related and are to a greater or less degree synergistic to each other and dependent upon each other. For illustration: If a cow is a non-breeder and gland therapy is indicated therapeutically, ovarian substance alone should not be administered. This glandular group which, in the given case, requires stimulation and additional secretion, comprises, not only the ovaries but the adrenals, thyroids and pituitary as well. For further illustration, suppose a building is in the need of repairs, a coat of paint, no matter how thoroughly it is applied, will not remedy a leaking roof or a crumbling foundation.

Referring to table 1, it is clearly ap-

parent that the action of one glandular group is often clinically antagonistic to another group. The pregnancy group consists of placenta, corpus luteum, mammary and fetal incretions. These may be designated as foreign and autogamous substances, clinically, to the sexual maturity group of glands. This explains failure to conceive in a cow whenever incretions from the pregnancy group, such as corpus luteum, remain after abortion parturition.

The practical application of the use of the various gland groups may be illustrated as follows:

Female Sexual Maturity Group

Glandular extract mixture indicated for failure to conceive, come in heat, non-breeder, retained placenta and delayed parturition: ovary, adrenal, thyroid, and pituitary.

Pregnancy Group

Glandular extract mixture indicated for nymphomania: placenta, corpus luteum, mammary, and fetus.

Male Sexual Maturity Group

Glandular extract mixture indicated for impotency: testes, adrenal, thyroid, pituitary, and prostate.

SYNERGISTIC ACTION

Therapeutic results apparently are very much dependent upon the correct synergistic action of the several gland groups. At the same time, over stimulation or an over supply of incretory substance from any particular gland must be guarded against. In other words, in therapeutic treatment as based upon laboratory experiments a most careful study must be devoted to endocrine balance. Proper glandular balance depends upon very careful and extensive physiological tests and clinical observations.

IMPORTANCE OF PHYSIOLOGICAL STANDARDIZATION

In formulating a therapeutic synergistic mixture of gland incretions from any of the above groups, such as the sexual maturity group for the treatment of sterility, delayed parturition or retained placenta in cows, mares, sows and ewes, it is of prime importance to be able to standardize each lot in the laboratory. Those specific preparations which can be accurately tested on animals provide the really dependable, "always to be relied upon" products for the practitioner, for illustration—tetanus and diphtheria antitoxin and blackleg aggressin. For this reason effort has been concentrated on this phase of the present investigation.

Results of experimental work presented in this paper refer to physiological tests conducted with an experimental synergistically balanced glandular preparations related to the sexual maturity group (ovary, adrenal, thyroid and pituitary glands. See table 1) as well as with other groups. In these studies the projects have been outlined in order that necessary attention should be given to method of preparation, potency or activity, animal tests or physiological standardization.

SERIES No. 1—TABLE No. II.

Pig No.	Product Tested	1st Day	2nd Day	Results
1630	Lot No. 6	1cc	2cc	Aborted on 6th day
1637	"	1cc	2cc	Aborted on 3rd day
1636	"	½cc	1cc	
1638	"	½cc	1cc	
1639	"	2cc	4cc	Aborted on 6th day
1640	"	2cc	4cc	Normal birth on 11th day

Methods of Standardization

The various methods of preparation of glandular extracts have been outlined in the literature and several well known methods are in use. The standardization of glandular preparations presents a more intricate problem.

At the present time, practically only three glandular preparations are standardized in the laboratory. Pituitary extract responds by showing oxytocic action on the advanced pregnant uterus; the superenal gland extract by an immediate blood pressure response; and thyroid preparations are submitted to chemical tests for iodine content. Aside from the above laboratory tests no practical methods are available for the standardization of the various endocrinous glandular preparations (hormone mixtures).

EXPERIMENTAL DATA

Having in view the therapeutic value of extracts from the sexual maturity gland group (ovary, adrenal, thyroid and pituitary), for the treatment of sterility as well as retained placenta and delayed parturition and that of the pregnancy group (placenta, corpus luteum and mammary), for nymphomania in animals, concentrated experiments have been applied to these glandular groups.

After due study on the independent action

of the gland extracts and the proper balancing to produce a hormone mixture applicable for therapeutic use, repeated series of experiments on pregnant guinea pigs were conducted with experimental synergistic mixture No. 6, prepared from the extracts of the fresh ovary, thyroid, pituitary and suprenal glands.

SERIES No. 2—TABLE No. III.

Pig No.	Product Tested	1st Day	2nd Day	Results
829	Protein Sol. No. 1	5cc		Normal birth on 4th day
831	Protein Sol. No. 1	5cc		
834	Protein Sol. No. 1	5cc		
837	Lot No. 6	1cc	2cc	Hair coat rough—appetite impaired
838	"	1cc	2cc	Aborted on 3rd day
835	"	1cc	2cc	Aborted on 2nd day
839	"	1cc	2cc	Gave birth to 2 apparently normal pigs
836	"	3cc	6cc	
827	"	3cc	6cc	
830	"	4cc	4cc	
833	"	4cc	4cc	
828	"	5cc	5cc	
832	"	5cc	5cc	

TABLE No. IV
SERIES No. 3

Pig No.	Product Tested	1st Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	Results
847	Protein Sol. No. 2	2cc 101/8	4cc 101/4 101/2	102/2 102	101/8 102	101/8 102		No apparent effect
848	Protein Sol. No. 2	101/8	101/8 101/6	102 101/8	102 101/8	102/2 102		No apparent effect
849	Protein Sol. No. 2	102/2	102 102/4	102 102/2	102/4 101/8	101/6 102/2		No apparent effect
850	Protein Sol. No. 2	102/2	101/8 101/6	101/4 101/8	102/2 102/4	102 101/2		No apparent effect
851	Protein Sol. No. 2	101/8	101/4 102/4	101/8 102	102 101/8	102 102/4		No apparent effect
846	Lot No. 6	1cc 102	2cc 101/8 101/8	4cc 102 102/6	104/4 103/8	102/8	8cc	Aborted on 3rd day
864	"	101/4	101 101/6	102/2 102/4	102/8 102/4	101/8 102		Aborted on 4th day
863	"	102/4	101/8 102	102/4 102	103/2 102/4	102 102/4		Aborted on 5th day
844	"	102/2	102 101/8	102/4 102/4	102/6 102/4	101/4	101/6	Aborted on 5th day
845	"	102	101/2 101/6	102/2 102/6	101/8 102/2	102	102/2	Aborted on 7th day
840	"	2cc 102	4cc 101/8 102/6	102/4 102/6	8cc 102/4 102/6			Aborted on 4th day
841	"	101/4	101/6 101/8	102/4 102	103 103/2	104		Aborted on 3rd day
842	"	102/4	101/8 101/6	102/4 102/6	102/4 102/2	101/8		
843	"	101/6	100/4 102/4	102/6 102/8	102/6 102/8	102/4		
871	"	102	102/2 102/4	102/8 102/6	102/8 103	101/8		Aborted on 3rd day

The results of some of these experiments are shown in tables II, III, IV and V.

The results from series of pregnant guinea pigs, table II shows the abortion of three of the four pigs from the third to sixth day after the injection of 1 cc and 2 cc also 2 cc and 4 cc of lot No. 6 at twenty-four hour intervals. Two pigs which received ½ and 1 cc did not abort.

In order to determine whether or not these results were due to the injection of foreign protein material a second series of 13 guinea pigs were submitted to treatments as outlined in table III. The same amounts of foreign protein material and preservative were present in solution No. 1 as were contained in lot No. 6 (glandular extract preparation).

No abortions occurred among three pigs injected with protein material. Two abortions occurred in four pigs injected with 1 and 2 cc of lot No. 6, at twenty-four hour intervals. Among six pigs receiving dosages of 3 to 6 cc, and higher dosage, no abortions occurred.

The third series of 15 pigs (table IV) were divided into three sub-series of 5 pigs each. The first sub-series received protein solution No. 2, which represented tissue protein matter extracted and prepared in exactly the same manner as the experimental synergistic, glandular preparation lot No. 6. Sub-series No. 2 received 1, 2 and 4 cc of lot No. 6 at twenty-four hour intervals, while sub-series No 3, received 2, 4 and 8 cc of lot No. 6 at twenty-four hour intervals. The results of this experiment show that the injection of foreign protein of the nature and amount contained in experimetnal lot No. 6 (glandular extract preparation) causes no abortion, that lot No. 6 produces abortion in the majority (80%) of pregnant guinea pigs injected, and finally that manifestation of abortion as result of the injection of synergistic mixture No. 6 is probably due, not entirely to the size of the dose, but is dependent rather upon successive injections.

Series No. 4, (Tablet V.) consisting of 10 pigs, 5 of which were pregnant and 5 non-pregnant, were treated with Lot No. 6, dosage 2 and 4 at 24-hour intervals. The results of this series illustrate previous observations that the injection of Lot No. 6 produces no marked or regular rise of temperature nor other untoward effect in treated animals.

TABLE No. V.
SERIES No. 4 (5 Pregnant—5 Non-Pregnant)

Pig No.	Product Tested	1st Day	2nd Day	3rd Day	4th Day	5th Day	6th Day	Result
		2cc	4cc	8cc				
877	Lot No. 6	101/8	102	101/8	102/4	102		
645	"	101/4	102	102/2	104/2	103/6		Aborted on 2nd day
647	"	102	102/2	102	104/2	104		Aborted on 3rd day
875	"	100/8	101/4	101/8	102/4	102		Aborted on 3rd day
680	"	101/8	102/2	101/8	103/4			Aborted on 6th day
		5 Non-Pregnant Pigs						
867	"	102/6	103	101/8	103/2	103/2		
868	"	102	102/2	102	103	102/4		
657	"	101/2	102/4	101/2	103	103/4		
674	"	101/8	103	102/6	103/8	104		
873	"	101/6	102/2	102/4	103/8	103/6		

Among other control measures not mentioned in tables above, guinea pigs used in the experiments were autopsied and cultures taken from the uteri and other organs. In those pigs which aborted, from the beginning of the experiments some time ago, it has been repeatedly observed that no evidence of illness exist other than some rise in temperature in some instances at the time of abortion. Usually, results are noted by simply finding the dead feti in the cage of the mother, the animal eating and otherwise exhibiting normal appearance.

Among clinicians it is recognized that abortion is usually the result of severe toxemia, such as is produced by the more severe, acute, specific infections. Moreover, it also occurs shortly before death. It would seem, therefore, that the results of these experiments, in which abortions occur with relative consistency following the injection of Lot No. 6, are due to

the specific oxytocic action of the material. Moreover, such action is not due to the pituitary extract alone as contained in the mixture but apparently occurs as the result of the synergistic balance maintained in the preparation.

PRACTICAL SIGNIFICANCE OF RESULTS

The importance of these results lies in the fact that they afford an accurate method of testing the specific and synergistic activity of the sexual maturity group of glandular extracts (ovary, adrenal, thyroid and pituitary) for the treatment of **failure to conceive, come in heat,** or **non-breeder**. Such a preparation is also clearly indicated in the treatment of **retained placenta** and **delayed parturition**.

If such a synergistically balanced mixture will produce abortion in guinea pigs it is clearly indicated as specific treatment for those conditions in the female animal which require the inhibition of the pregnancy glandular group and stimulative of the sexual maturity glander group.

SUMMARY

1. With the exception of certain clinical conditions such as neurosthenic and hypochondriac complexes, as found in man, it is possible that the use of glandular preparations may attain the same useful position in the treatment of animal diseases as in human therapeutics.

2. In veterinary practice nymphomania, failure to conceive, delayed parturition and retained placenta and impotence in the male, constitute diseases which present a serious problem to the practicing veterinarian.

3. Careful grouping of the various endocrine glands in their relation to the different periods of life show that there are certain groups which are active during the following periods of the life of the individual: (1) Youth; (2) Sexual maturity; (3) Pregnancy; (4) Suckling or lactation; (5) Old age. According to present knowledge in the female, the important endocrine glands are twelve in number and in the male seven.

4. In the treatment of (1) failure to conceive, delayed parturition and retained placenta and of (2) nymphomania in the female the rational therapeutic procedure involves the use of incretions from the glands included under the (1) sexual maturity glandular group (ovary, adrenal, thyroid, pituitary) and the (2) pregnancy glandular group (placenta, corpus luteum, mammary) respectively. The therapeutic use of glandular extracts for the treatment of impotency in the male calls for the sexual maturity glandular group (testes, adrenal, thyroid, pituitary and prostate).

5. The results of preliminary experiments indicate that a properly prepared, synergistically balanced mixture of extracts from the thyroid, suprenal, pituitary and ovarian endrocines can be standardized by its oxytocic (sexual maturity group) action upon the pregnant guinea pig uterus. In this investigation abortions occurred in 53 per cent of all experimentally treated, pregnant guinea pigs. 80 per cent of those which received successive injections aborted.

6. The specific action of such preparation to produce abortions in pregnant guinea pigs is based upon the controlling fact that such abortions are not the result of the injection of foreign protein material nor of infection with any living micro-organisms. Furthermore, the oxytocic activity of the experimental preparation is apparently due to the synergistic action of the glandular extract mixture.

7. Other experiments are in progress and additional reports will be made in the near future.

HUNDREDS LIKE THESE BUT NO SPACE

To the Editor:

Please find enclosed check for renewal of my subscription. I would not be without your valuable journal for many times its cost. I never receive an issue that does not contain several items that are worth more to me than several times the price.—Let the good work go on.—C. H. N.

To the Editor:

Enclosed find check for renewal of VETERINARY MEDICINE. My appreciation of VETERINARY MEDICINE accords with that of a young practitioner who said to me the other day "I have learned more in my practice from reading VETERINARY MEDICINE than from college, with the possible exception of surgery"; to which I would add:

There's lots of things that do not go by rule,
There's a whole lot of knowledge
You do not get at college;
There's lots of things you do not learn at school.—W. G. R.

Legal Requirements as to Skill Demanded of Veterinarians

By Leslie Childs, Greenfield, Ind.

Generally speaking, the veterinary surgeon is bound only to use a reasonable degree of skill in the practice of his calling. The law does not demand the exercise of the highest degree of skill, and when he has exercised a fair, reasonable, and ordinary degree of skill, as measured by the degree of skill of other practitioners in his locality, he has, by the weight of authority, fulfilled all the legal requirements.

And, in the absence of a special contract, the veterinarian does not warrant a cure, and the mere loss of a case does not imply a lack of skill. If then one employing a veterinarian seeks to hold the latter liable for the loss of an animal he must prove considerably more than the mere death of the animal under the veterinarian's treatment. This phase of veterinary jurisprudence was passed upon in an interesting manner in Barney v. Pinkham, 29 Neb. 350, under the following facts.

Action for Damages Brought Against Veterinary Surgeon

The plaintiff had, it appears, employed the defendant, a veterinary surgeon, to attend a sick mare. The defendant responded, treated the animal, but without success, and after the death of the mare the plaintiff brought instant action against the defendant for damages in the sum of $200.

The plaintiff in his petition alleged among other things, "That the defendant was and is incompetent to treat sick and diseased horses; that he prescribed, and gave and caused to be given to said mare aforesaid, drugs and medicines wholly improper for the cure of and treatment of the disease from which the said mare was suffering; * * * which did cause the death of said mare. * * * "

Nowhere in the above petition did the plaintiff allege that the defendant veterinarian had been negligent in the treatment of the mare; neither did he set out in any particular manner the alleged wrongful acts of the defendant, but seems to have relied upon a general statement of the defendant's alleged incompetency and the fact that the animal died.

Upon the trial of the cause in the lower court the plaintiff was given a judgment against the veterinarian. The evidence, however, upon which this judgment was based does not appear in the report. The defendant veterinarian, carried the case up on appeal, and because of the lack of evidence in the record, as noted above, the only question before the higher court seems to have been as to the sufficiency of the petition, as has been outlined. In clearing the ground to pass upon the sufficiency of this petition the court first stated the rule relative to the degree of care demanded of a veterinarian in the practice of his profession. In this connection it was said:

General Rule of Skill Stated

"A veterinarian impliedly engages and is bound to use in the performance of his duties in his employment such reasonable skill, diligence and attention as may be ordinarily expected of persons in that profession. He does not contract to use the highest degree of skill nor an extraordinary amount of diligence, but to exercise a reasonable degree of knowledge, diligence, and attention. * * * "

Following the above statement of the general rule, relative to the degree of skill required of a veterinarian in his practice, the court directed its attention to the sufficiency of the petition. On this point it was, among other things, said:

"No doubt an action will lie against a veterinarian for gross ignorance and want of skill as well as for negligence * * *; but there is no charge of this kind unless the word 'incompetent' includes such charge, which it does not necessarily, as the incompetency may arise from physical defects, as impaired vision or other like cause.

"When it is sought to charge one employed in a profession requiring skill with ignorance or want of due care, it must be done by allegations stating that fact, and it should not be left to mere inference to be deducted from the use of vague and indefinite terms.

"The implied contract of the plaintiff in error (the veterinarian) was not to cure but to possess and apply in his treatment of the case such reasonable skill and diligence as are ordinarily exercised in his profession, * * *. The care and diligence required are such as under the circumstances a careful and trustworthy man would be expected to exercise. It is evident, therefore, that the petition fails to state

a cause of action."

In conclusion the supreme court reversed the judgment rendered in the lower court in favor of the plaintiff, the owner of the mare. Holding, as outlined in the opinion, that the petition upon which the action was based was not sufficient to support the judgment, and that under the allegations of this petition the veterinarian was not liable in damages for the death of the mare.

Summary

As noted heretofore, the proof, under which the owner of the mare attempted to recover against the veterinary surgeon, does not appear in the report. This, however, does not weaken the force of the higher court's statement of the general rule in the matter of skill demanded of the veterinarian in the performance of his duties; neither does it detract from the ruling that to hold a veterinarian liable for failure to exercise proper skill, negligence must be alleged, and the facts supporting such allegation must be set forth with some particularity.

So, taken all in all, this Nebraska case becomes one of considerable value to every veterinarian. It announces the rule, relative to the exercise of care required of veterinarians, in a clear manner; and, in addition, illustrates what must be alleged and shown before a veterinarian may be held liable for an alleged want of skill in the treatment of a given case. Truly it's a nice case for the veterinarian to put in his scrap book.

Live Stock Poisoning

By Professor L. H. Pammel, Associate Editor

ST. JOHN'S WORT POISONOUS

"My customer has furnished me with an additional weed which he thinks is St. John's wort, which is causing his trouble. His horses have an area around the lips with loss of hair around the head at different places when he feeds this feed." D. C. S., Ohio.

Reply

The plant sent is common St. John's wort **(Hypericum perforatum)** a native of Europe but long since naturalized in North America. It is found in the north from New England to the Mississippi Valley but especially common eastward. It is as yet not common in Iowa or Minnesota except on the eastern boundary of Minnesota in limestone soil. The common St. John's wort is a herb, though some of the related species are shrubs.

Stockmen complain that eating the plant causes eruptions of various kinds. Where cows come into contact with the plant, especially udder and mouth, eruptions occur. Professor Chestnut reports a case from Maryland where five horses were poisoned by eating meadow hay that contained this plant, one horse died from the effect.

The symptoms caused from eating this are much the same as caused by eating alsike clover; loss of hair and formation of ulcers. The resin obtained from the plant is bitter and acrid. It causes mental depression and exhaustion, vertigo and confusion, dilation of the pupils and an increased heart action. I have no doubt that the St. John's wort sent by Dr. Snow is the cause of the trouble referred to.

SUPPOSED CASE OF POISONING FROM SEDGE (CAREX)

Mr. J. Wilson of Traer writes as follows: "I am sending you a weed that our veterinarian thinks causes the death of horses, causing them to go "crazy". Will you please tell me what it is and if it has any injurious properties."

Reply

The weed sent to me is one of the sedges **(Carex vulpinoidea)**, a grass-like plant found in low grounds in many parts of Iowa, and is to some extent used for hay, the hay, however, is of poor quality and there is not much nutriment in the same. This plant is not, so far as as I know, injurious or poisonous. There are of course other plants in this low ground, two other at least of which are poisonous. One of these is the purple loosestrife **(Lythrum alatum)** and the other the cowbane **(Cicuta maculata)**. The latter is very poisonous, but it is not likely the animals would paw out the roots.

There is a well grounded belief that certain organisms may in some pastures become attached to some plants and thus cause a disease.

At any rate, the sedge primarily is not the cause of the trouble spoken of.

Veterinary Instruction in the Agricultural Curriculum

(Excerpt from the Annual Report of the Idaho Vet. Med. Assn., 1922)

Dr. Plank: The thing that impressed me today is that we have with us the dean of a college of another state who is educating young men to the highest degree, fitting them for the veterinary profession, while in our state we have a veterinarian instructing a bunch of farmers to come out as a class of quacks.

As I understand the situation our instructor teaches farmers the use of medicine, obstetrics and other things that make the students a detriment to practitioners. They not only treat their own animals but prescribe for their neighbors, after getting this smattering of veterinary knowledge.

Dr. Colton: I am reminded of an instance that occurred just a short time ago when called to a certain ranch. The owner, a breeder of purebred stock, in a confidential talk admitted that the reason he had never called me to do his castrations was because he was taught to do that operation well while attending the agricultural college of Missouri. He said that the veterinary instructor did lots of castrating and let each student each take out a testicle, and that as a result of this instruction he could castrate as good as anyone else.

Dr. Plank: I think we should draw up a resolution on this subject. I think if this movement continues we shall have more empirics than ever before, and as a little knowledge is a dangerous thing, it will do the profession a great deal of harm, and help no one.

Dr. Smith: I must say that every man in this room would regret that he put in three or four years at college if he could get the whole subject from one man. I believe that such practices should be stopped.

Dr. Hurd: I am wholly in sympathy with your ideas on this matter, but fail to see how we can get anywhere with nothing more than an open discussion. It seems to me a committee should be appointed to look into the situation in order to accomplish better results than we can accomplish here.

Dr. Plank: Over in Washington we have a college supervised by men educated for instructors and turning out very efficient men, while here in our state (Idaho) we have an institution that is turning out a bunch of men to tear down the good work being they are doing.

Dr. McCoy: I agree with the ideas set forth to a great extent. However, in considering the subject I think it is only fair to look at it from the other side. I think if you consulted the board of control of the University of Idaho that they justify their position something like this: These boys go to the university to receive instruction in the care of livestock. If they do not learn something that will enable them to know when there is something wrong, then what is the value of their college education?

It seems to me that it would be preferable to bring about a change by which the rights of the veterinary profession would be recognized —a course of instruction on diagnosis. We can accomplish more by co-operation than by antagonism brought about by any drastic resolution.

Dr. Nelson: We have had the same thing to contend with down our way. The agricultural college used to turn out a lot of empirics, but through our influence they are now giving a course that educates students to recognize diseases but not to treat them.

Dr. Wegner: This is not the first time this matter has been discussed at meetings I have attended. Pardon me for digressing, but there are some things we can control and some we can not. I am very sorry from the standpoint of the livestock owner to see all kinds of biological products delivered to them direct. I do not think it will be long before the farmer can buy any biological product. I do not see how the farmer will be benefitted but I do see how he will be hurt, and I don't see how the traffic can be suppressed.

Going back to Dr. Plank's contention: What are we going to do with men who come to college for six to ten weeks expecting to derive some material benefit? I have worked with a good many short-course classes and have found that the students are very intelligent men, progressive fellows. The unprogressive do not come. We do not try to teach them to diagnose disease, because that would be useless. We explain what disease is like and outline the simplest kind of treatment. They expect something of that kind and are going

to have it. Did it ever occur to you that men with a desire to learn accumulate a great deal by watching his veterinarian? We do not give such students as much clinical demonstration the practitioner unconsciously gives them while treating their own stock. And what harm has it done? I do not believe it is a good thing to cloak a man's profession in mystery; it can not be done among educated men. Your hope is in impressing them with the thought that you are a scientific man along a particular line and deport yourself so as to win respect for your ability.

Our aim is to show how little it is possible for them to learn in the short time out of the great fund of knowledge, and to impress upon them that if they want to treat animal diseases they must give us four years of their time. The idea is to teach these fellows how little they know, and in carrying this idea out I have had students express their surprise at the broadness of veterinary science. Most of these men have a more wholesome respect for the veterinary profession after taking these courses than ever before. It is unfortunate that a few of them take advantage of the smattering knowledge they have received and attempt to practice, but the medical profession has its competition in this connection just as we have and I do not see how we can prevent it. I do not believe, that if these courses are properly presented that many will think they have been qualified to go into practice. It is a great deal the same with sick stock as with sick men; those interested should know when they can deal successfully with simple ailments, and when they should send for the doctor.

The Nursing and Feeding of Sick Animals

By Lieut. R. Payne McComb, V. C., U. S. Army

Excerpt from Veterinary Corps Bulletin by permission of the Surgeon-General of the Army

OUR chief mission as veterinary officers is to prevent sickness and inefficiency. But once an animal is sick curative medicine must be practiced. We may choose to occupy ourselves with one branch at the expense of the other, this the individual officer's attitude will decide. To lose enthusiasm or interest in any branch of the profession contracts our sphere of usefulness just that much. If we do not keep well qualified by practice, and fail to enlarge the domain of curative as well as preventive medicine the corps will lose prestige.

The value of carefully nursing the sick is not dependent entirely upon the diet and material supplied. Factors such as increased number of visits to the box, practiced observation, and aroused interest and solicitude are of value beyond cavil. Teaching the attendant the value of good nursing and the extent of his responsibility, and giving just credit for the cure is the most effective way of building a valuable man.

Balance Turned by Nursing

The nursing of sick animals is a branch of veterinary medicine to which altogether too little attention is given. It is believed that good nursing in many instances will turn the balance in favor of life and recovery. At least, if the condition is properly diagnosed, the drug or drugs indicated administered to effect and careful nursing practiced, no regrets are in order if the case terminates in death, it is believed that nursing is, in some instances, the deciding factor, and in all materially influences the termination of the case.

Many practicing veterinarians in private life have lamented their inability to provide the nursing believed valuable, but impractical for economic reasons. In the army, however, sufficient personnel is usually available and the veterinary officer who fails to impress upon his enlisted force the necessity of taking into consideration every means possible of aiding nature to repair and rejuvenate is negligent in his duty.

A nurse is defined as "one who is devoted to the care of the sick as a life work or profession." Excluding the administration of drugs, first aid, etc., just what constitutes "nursing" an animal? This may be answered by including any and all acts which directly or indirectly add to the comfort and well being of the patient. It is deemed unnecessary to elaborate on the qualifications of an animal nurse in detail. Provided he is fond of animals and of a kind disposition the teachings will not fall upon barren soil. Unsympathetic, rough and impatient men lacking in love for horses, are temperamentally unfit.

Mental Comfort a Factor

Second only to the dog the horse is, of all animals the least adaptive. He is very conservative and resents any departure from his every day life. Until the sick animal is very low indeed, he will fret at the absence of his former companions. He will "stall walk" his

stall, paw and nigh. The gregarious instincts of the horse are proverbial, and it has often been recommended that the animal be left in his own stable for treatment when it can be permitted with safety to the other animals. This practice, needless to say is impractical for obvious reasons and mentioned only to illustrate the importance attached to the necessity of contentment for sick animals.

In addition to administering the medicines prescribed, the nurse should do everything possible for the comfort and contentment of his patient. His first act should be one of kindness, patting and talking quietly to the animal in an attempt to gain his confidence. He should see that the stall is clean, well bedded and airy. He should visit his stall frequently, always with a wisp of hay, a few kernels of oats, sugar or other well liked bits. Adjust the blanket, pet the animal and endeavor to convey the impression that he is being cared for. The animal which pricks up his ears upon the approach of an attendant is mutely testifying to his like of that attendant of his interest in the prospects for dinner.

Good Stall-Care Required

The horse is a light sleeper and easily wakened, and since rest and repair of tissues are effected during sleep every effort should be made to induce sleep in a rcumbent position. The horse has the power of sleeping standing up but such rest and sleep is insufficient for sick animals and a complete relaxation of all muscles is only obtained in a recumbent position. Therefore, a good bed is an important detail albeit some horses rarely lie down, a good bed had a marked effect on inducing horses to "bed down" properly. An animal does not in health lie on one side for long periods. His great weight is not conducive to comfort and he will either roll over or rise and lie down again on othe other side. This fact should be borne in mind by the attendant and sick animals turned over occasionally if they persist in remaining on one side. Due consideration must be given the nature of the diagnosis because certain pulmonary conditions may indicate the repeated favoring of one side, usually the affected side as in unilateral pneumonia for example.

Stable and Feeding Hygiene

The quantity of air required by the sick should be unlimited, if possible they should live almost in the open. A horse gives off from the lungs and skin in a state of repose 6.4 lbs of water in 24 hours and where the amount of fresh air introduced is insufficient to remove the excessive moisture, great discomfort and oppression exist. The box stalls in veterinary hospitals are usually open on the inner sides, or at least only semi partitioned. It is believed this is a mistake, and that if they were completely shut off from the balance of the stable, with proper facilities for direct ventilation for each individual box a more exact control of temperature and humidity would be possible.

Feed Appetizing Rations

In the preparation of feeds for the sick many factors must be considered. Providing the animal is eating sufficient quantity of oats and hay no concern need be felt. It is with the animal which will not eat such feeds but needs nourishment that one must practice the art of stimulating the appetite, and many persistent attendants have induced such animals to eat some of the combinations listed in this article, These prepared feeds are not, by themselves, a maintenance ration. Their chief advantage is in stimulating the appetite and paving the way for a more substantial diet.

The sense of smell must be considered first of all. Without tasting it, a well horse will refuse a grain or food he is not familiar with. It is well therefore to take cognizance of this fact in offering feeds to the sick animal, and steamed oats or hay added to the mixture in sufficient quantities to dominate the other odors. Once tasted, and enjoyed, new food stuffs will be eaten readily without such odors added.

Second only to the odor of feeds is their palatability. Palatability is greatly influenced by odor, familiarity and habit. Some foods offered, albeit of a pleasing odor are refused by the horse due to his unfamiliarity. He may, if coaxed, nibble at it and later evince a fondness for it. In such cases what at first seemed unpalatable becomes ultra palatable. The sick animal usually possesses an appetite with the edges blunted, or at least a precarious appetite. The fact that he may refuse food at 10:00 A. M. should not be taken as an indication that he will not eat the same food greedily a half hour later. While grinding, cracking, rolling and soaking or cooking grains may not add to their digestibility, or may even lessen it, it is obvious that a sick animal which refuses hay and oats, is benefitted by such feeds.

Perhaps the most relished class of feeding stuffs are the succulent feeds. As fruits stimulates the humane appetite, succulent feeds stimulate the appetite, aid in digestion and induce greater consumption in the horse, and have a mild laxative effect.

The Salt Allowance

The subject of salt for the sick may be dealt with in a few words. Salt, claims Kellner, besides its physiological action, serves as a spice or condiment which whets the appetite and increases the palatability of many foods. It also stimulates the secretion of the digestive fluids, hastens the circulation, etc. Salt should be before the animal at all times, but excessive consumption should be guarded against, in view of the fact that a depraved appetite is a frequent concomitant of sickness.

Exercise

The importance of exercise in the maintenance of health is too well understood to justify any remarks. The animals the writer has in mind, however, are considered analogous to bed patients in a human hospital and are in no condition to be exercised. During convalescence, when the ordinary feeding stuffs are acceptable, exercise is essential, but should be judiciously controlled.

Some Palatable Foods

The purpose of artificially prepared feeds for sick horses is to improve its palatability, or to mix certain feeding stuffs with materials that enhance their appeal to the sick so they will eat what would otherwise be refused.

The following is a list of material which by itself, raw, cooked, or combined with other feeds may be considered under animal dietetics:

Undoubtedly the most common feed offered the sick horse is the **bran mash**. Properly made and fresh, it merits its popularity. However, of all abominable things, a bulky, sour, salty, cold untouched bran mash before a sick horse is the worst. Place good fresh bran in a clean pail and pour boiling water over it. Be sure the water is boiling, and pour just enough to make a crumbling mass, a pinch of salt, if added, must be thoroughly incorporated before adding the water. Cover with several thicknesses of grain sacks, and let stand until cool enough to feed. Give just what will be eaten greedily. Oats, corn, cut steamed hay, raw eggs, etc., may be added.

"Barley meal" may be made by taking six parts of barley meal, four parts low grade flour and one pound of oil meal cake. A pound of this boiled down to six pints of water from a gallon makes a capital drink, well liked by most horses. Bean meal is usually mixed with well boiled potatoes.

Beef tea is made by macerating lean beef and placing in a receptacle, just covered with water and standing in a water bath for three hours. Give, diluted with water, linseed oil or milk.

Bread and biscuits may be given alone, dry or moist or combined with greens, such as carrots, beets, etc. Stale bread and molasses is also relished.

Oatmeal may be fed dry, but makes a nice gruel when soaked in hot water over a slow

This is John F. DeVine, Jr., of Goshen, New York, winning the championship for his favorite mount, "Shooting Star," at the Orange County Fair, August, 1922. Notice the abject indifference of the rider and the ease with which the horse is clearing the last bar.

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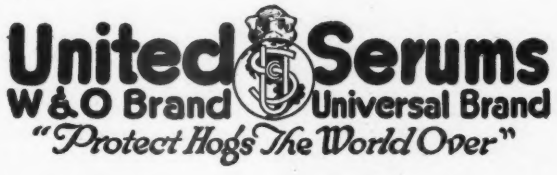

fire for two hours, well stirred and fed, or strained and given as a drink. Often used in tetanus.

Corn flour made into a mush and browned over a fire is an excellent feed and will often be relished by animals refusing everything else. Corn flour mash is made by taking eight tablespoonsful of the flour to each quart of milk. Boil slowly for 10 to 15 minutes, pour into a clean pan and stir in a cup of linseed meal or one-fourth pound of the oil cake reduced to hickory nut sized pieces. Give cold.

Linseed tea is made by boiling a pound of the whole linseed in two gallons of water down to ten pints and straining. Medicines may be advantageously administered this way. Old process linseed oil meal, oil meal or linseed meal as it is variously called should be used if possible. In making gruel or mash from the untreated flaxseed it is advisable to use boiling water and keep the mass hot an hour or two to destroy any prussic-acid-forming enzyme in the seed.

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Linseed gruel is an excellent food for the sick horse, being palatable and easily digested. It acts both as a food and a medicine. In febrile diseases horses will often sip or drink cold linseed tea (two ounces to one pint of water) when they refuse all else.

It is best fed by diluting with water and sprayed on the hay. It may be fed to sick horses on oats, cut chaff, etc., but should be diluted with water to mitigate its objectionable stickiness. During fly time the molasses feeds should be fed over an old rug or box that may be removed and cleaned after feeding. Perhaps the ideal way to feed molasses to sick horses is in the form of "molasses rolls." Using either bran, middlings or chop feed and chaff or chopped hay, mix one pound of molasses with sufficient quantity of these feeds to make a dry ball. Not to exceed three of such balls per day should be fed.

Steamed alfalfa or other hay is best made by cutting into short lengths, placed in a pail and covered with several thicknesses of burlap. Pour boiling water on through the burlap, and let stand about 30 minutes. Use only enough water to swell the stems. The hay will become green and bright and the "nose" intensified. Feed just a least bit warm on the rug. Do not let stand too long as it looses its aroma and becomes soggy.

Alfalfa meal does not lend itself to moist mixture alone, and is best fed mixed with hay leaves (mow scrapings) and rolled oats—or may be used in making molasses balls.

Feeds for Sucklings Colts

Feeds for the foal of suckling age on sick report are limited to milk, sugar water and lime. If possible obtain milk low in butter fat from the same cow daily. To a tablespoonful of sugar add enough warm water to dissolve it then three to five tablespoonsful of lime water, and enough fresh milk to make a pint. Feed about one-four pint every hour for the first few days, carefully warmed to body heat. Utensils used in feeding the foal must be thoroughly cleaned and scalded before each meal. To neglect to do this is to kill the foal. As the foal grows the number of feeds per day may be diminished, and the sugar omitted. The amount of milk must be gradually increased, skim milk may be gradually substituted and linseed meal added and feeding grains placed within reach.

Now Turn to Page 91

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Queries and Answers

NASAL TUMOR IN A MARE

I have a large Percheron mare that would be worth three or four hundred dollars but for an obstruction of one nasal chamber caused by a hard growth that can be felt by passing the finger up the nostril. The mare has been working with some difficulty all summer and is getting worse and worse. She is now practically worthless and seems even to be partially obstructed in the opposite chamber. I have heard that such tumors can be successfully removed and as the owner is waiting for me to operate

I would be very thankful for any information about the best plan of procedure.

Reply

The obstruction you feel is a polypoid growth attached to one of the maxillary molars, and since the obstruction is so complete it will be found to occupy the whole nasal chamber. It is also pressing the nasal septum over to the opposite and reducing the lumen of that chamber also. The posterior part will be found encroaching upon the facial sinus at the points of least resistance. It is pear-shaped with the large part posterior. The small part of the pear is what you feel through the nostril. Although the growth is not malignant it will kill the mare very soon from the enfeeblement that will arise from obstructed respiration.

The Operation Not Difficult, but Bloody

The operation for these growths is not difficult although to outward appearances a very bold stroke of surgery. The mare should, if possible, be secured on the operating table; although rope restraint will answer. The former is the most comfortable for both the operator and patient. You must be content with local anesthesia because of the danger of aspirating blood into the lungs under chloroform. The secret of success lies in making a big enough window in the nasal roof to do the necessary intra-nasal work. Make the opening three or even four inches long right over the rounded part of the nasal bone with the fourth molar as its center. It should be three quarters of an inch wide. The best way to make such an opening is to trephine at each end and then chisel out the bone remaining between. It is advisable to smooth the edges of the bone well to prevent making nasty wounds on the fingers when the patient moves the head. This far there has not been much bleeding and the size and shape of the growth can, with a little patience, be accurately determined by instrumenting with blunt flat sounds and the fingers. Sometimes it is so tightly pressed against the walls that the fingers cannot be passed between it and the confining wall—the nasal system medially and the septa of the sinus and maxilla laterally. Generally the fingers can be passed over its posterior face. The first step in the extirpation is to locate its attachment; its peduncle, which is often an inch or more in diameter. By passing a sound between it and the maxilla it can be located and torn loose if the sound is a strong one. It is not advisable to use a sharp knife.

The growth should then be grasped with a good strong tumor forcep, pulled upon and

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rotated with the assistance of the fingers in the opening to assure that it is loose. If not too large to pass the narrow part of the nasal cavity anteriorly it may come out en masse, but if too large it may be necessary to dig enough out through the opening with tumor forceps to allow it to slip forward under traction. It is possible to dig it all out through the opening piece by piece but this spoils the beauty of the operation.

When the patient begins to breathe through the opening by reason of having removed the posterior part, the exhalations will sprinkle what seems to be a frightful amount of blood over the surroundings, but the amount is more imaginary than real. Still the operation must not drag along as the blood loss may be considerable. It seldom, however, reaches the danger point. When the patient is returned to the standing position the bleeding stops in a few minutes. Packing the nasal cavity to effect compression hemostasia is seldom necessary and is reserved only for a persistent bleeder.

After-Care

When the operation is over the patient is cured and is resorted to full value as soon as the wound in the skull has healed.

The after-care consists of attention to the external wound and occasional irrigations with warm, weak astringent solutions of which a one per cent zinc sulphate is the best. The cutaneous and osseous wound is simply sprinkled with an antiseptic powder.

This is an instance where a veterinarian can effect 100% salvage.

WEAKNESS FOLLOWING DISTEMPER

Would you be kind enough to solve the following problem for us?

We have a three year old Irish terrier who had distemper when less than a year old and came out of that all right. About seven months ago, he showed all signs of distemper again. He was given antitoxin and was up and around in 24 hours. Since then, for three or four weeks, his eyes have been discharging, had fair appetite but for the past six months has been in good flesh and eats well, although his hearing has become bad and he has lost the sight of one eye. Lately, he has become very weak and staggers; he tries to run but will fall over, because of leg weakness.—P. F. R., Mich.

Reply

It is our opinion that your patient is suffering from a delayed complication of distemper. The dog probably never entirely recovered from the initial attack.

There is always a good prospect of restoring the health of dogs that weaken in this manner by strict attention to the diet. We would advise raw, lean meat, milk that tests no less than 3.5 per cent butterfat and four or five full dram doses of cod-liver oil per day. We do not believe in strong medication. It will of course be necessary always to keep a close watch on the condition of the bowels.

DIP FOR DOG TICKS

In this part of the world dogs frequently have ticks. Removal by hand is a tedious job. Have tried several dips with varying success. Kindly reply in VETERINARY MEDICINE what you consider is the best dip for this condition.—D. R. B., Australia.

Reply

We claim no experience in ridding dogs of ticks other than hand-picking, but believe that any of the dips described by Maurice C. Hall on page 707, Vol. xvii (September, 1922) should answer any purpose and we commend them to the querist for trial.

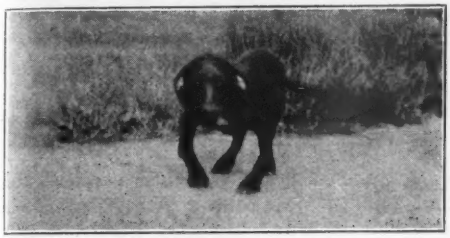
RICKETS, DUMB RABIES

1. I am sending you herewith a photo of a pup for publication if you see fit, and I would like to know the cause of this trouble. The pup in question is one of a litter of nine, one of which died at the age of three or four days. The others are being raised by the bitch. They are a cross between an English and Irish setter and are the bitch's first litter. The owner gave the pups Glover's worm capsules with no results so far as he could tell and the mother has been fed meat, bread, meat rinds and cracklings, corn mush and corn bread. The pups were fed separately at the age of five weeks and at the age of six weeks the bow-leg trouble began in one of them. The others never developed this condition.

The owner now informs me the pup is hail and hearty and shows nothing abnormal except the crooked legs.

2. What is the trouble with dogs from five months to one and a half years old or even older that show the following symptoms: Slight salivation, dirty mouth and lower jaw

paralysed. Some of them can snap and others can not. After snapping or closing the mouth the jaw will drop again. They seem unable to eat or drink but will swallow if food or water is



placed back in the mouth. Some have a slight elevation of temperature and others are normal. The bowels are constipated and they live from three days to a week.—O. A. B., Ill.

Reply

1. The pup whose infirmity is graphically illustrated has rickets. Keep him on a whole-milk and raw-meat diet and administer cod-liver oil and phosphate of iron internally over a long period. There is nothing unique about a single pup out of a large litter being affected with rickets while the rest of the litter remain perfect, since malnutrition may arise from an inherent as well as from an extraneous cause.

2. The dogs you describe have dumb rabies without any question of doubt, and there are good and sufficient reasons for you to be anxious about having handled them with such impunity. Dogs affected with this form of rabies are quite capable of transmitting the infection into abrasions on the hands as those having the violent form, with the exception that they seldom bite hard enough to inflict a wound.

BARBED WIRE LOTION

Will you please give me a prescription for a good, practical and cheap barbed-wire lotion? —I. W. M., Ia.

Reply by E. L. Quitman

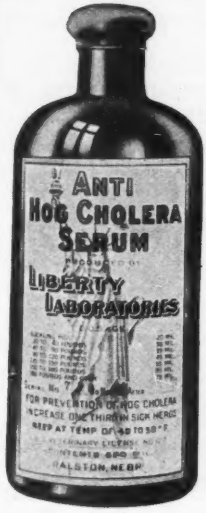
Inasmuch as farmers seem to prefer a black oil mixture for this purpose I would recommend:

℞

Oil of pine tar
Crude oil, of each.....1 pt.
White-rose neutral oil, q. s.....1 gal.
Mix.

Such a mixture is useful not only for wounds but is also very effectual for mange. It is also hard to improve upon as a gall lotion.

LIBERTY SERUM



when properly administered unquestionably means **Freedom from the ravages of HOG CHOLERA**

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COLORING FOR HYDROCHLORIC ACID

I am interested in some agent that will color a mixture composed of equal parts of dilute hydrochloric acid and water. If you know of any such agent I will appreciate a prompt reply.—J. A. T., Va.

Reply by E. L. Quitman

To color hydrochloric acid solutions, I would suggest caramel. With burnt-sugar coloring you can make any shade of brown you may desire.

THE DOSE OF CHENOPODIUM FOR PIGS

Since santonin has become so expensive I have been treating my worm cases with a capsule containing:

℞

Chenopodium	7½ grs.
Calomel	2½ grs.
Aloin	5 grs.

Sodium bicarbonate q. s.

I wish you would tell me if this could be an efficient capsule and what amount of chenopodium should be given to a fifty-pound pig, a hundred-pound pig, etc. Please go into details. I have held autopsies on a great many pigs that had been treated with cheap capsules and proved beyond question of doubt that they are worthless.

Reply

The treatment of helminths is difficult, for the reason that no single prescription yet discovered will answer every purpose. There are different kinds of worms and there are different stages of the infestation with which the practitioner must reckon. It would, therefore, be impossible to answer your question about the merit of the capsule you describe. It would be preferable to follow the course now in vogue and use oil of chenopodium for ascarids instead of the powder, even though it can not be as easily incorporated with other vermifuges.

Oil of chenopodium is a good ascaricide for swine. Its dose is about one dram to every 100 pounds of weight. It is best to administer it with a bland oil. The objection over the powdered anthelmintics is the difficulty of administration. The one must be drenched while the other can be given in capsules and must then be followed with a purge to overcome its constipating and toxic effect.

The general plan recommended by Hall is to fast 24 to 36 hours, administer the anthelmintic and then give a purge three hours later. The purge may be castor oil or a saline mixed with slop.

The anthelmintic value of santonin, according to Hall, has been overestimated and is inferior to that of chenopodium.

WHITE YOLKS IN EGGS

I have a small flock of leghorn chicken that we keep for pleasure and to help keep down the cost of living. When purchased the yolks of their eggs were yellow, in fact quite dark, but recently they have become pale, and in some instances almost white. The eggs taste all right but are less appetizing on account of this unnatural color. What is the cause? I feed clean meat scraps from the table, oats and barley. A. V. S., Wis.

Reply

You can not expect dark yolks on a diet of barley and oats. Yellow corn, or scratch feed containing large percentage of it will help, and if you can dig up a little green feed for them the improvement will be still more marked. In lieu of green feed you might sprout the oats.

GOITER IN CALVES

What is the cause of goiter in calves? I have met several such cases lately and the last one was of enormous size, bulging out the neck so as to impede the movements of the head. I am treating it with potassium iodid internally and tincture of iodin externally. The calf is a female that is highly prized by the owner and I desire to render him the best service available. Is there anything more to be done?—L. M. K., Minn.

Reply

By following a proper feeding program for the mother, including plenty of fresh water and salt and a full allowance of whole milk for the calf, it will improve gradually as it develops. Calf goiters are not generally serious. We know no better medical treatment than you are giving.

The cause of goiter in the young is not known. It must be sought among the mysteries of pre-natal nutrition.

HORSE URTICARIA

What is the cause and nature of the disease we call urticaria of horses? I have had several cases recently and all of them recovered in the usual manner after a purge had been given except one that lasted three days before all of the swelling disappeared. One of the cases was frightfully swollen, practically over the whole body. Big patches appeared at first and then these coelesced until the body seemed to be covered with welts.—W. H. M., N. Y.

Reply

Urticaria of horses belongs to the domain of anaphyxlaxis. It is caused by the absorption of undigested proteins and is comparable to the postprandial condition called hives in humans. It is well known that some persons contract this condition from eating certain food against which they have an individual idiosyncracy. Strawberries, for example, is actually poisonous for some and shell-fish for others. While no one seems to have distinguished the particular forage that causes the condition in horses it is likely that a little investigation in regard to the rationing immediately preceding the attack would be fruitful in incriminating particular feeds or weeds.

The disease is never very harmful and while purgatives and diuretics are indicated, the truth is the patient generally recovers before these have had time to operate.

INTERNAL MEDICATION FOR WARTS

I would like to have your opinion as to the merit of internal treatment for warts in domestic animals. It is highly evaluated by some and pronounced ineffective by others. There seems to be a difference of opinion among those of your own staff that confuses a young practitioner who is trying to practice the latest approved methods. Warts may not be of much consequence but if my memory serves me right I was taught that a man is often judged by the success he has in treating simple conditions.—A. L. T., Kan.

Reply by E. L. Quitman

I want to affirm with positiveness what I have often expressed about the value of arsenic for warts, administered in the form of Fowler's solution, as I have personally treated several hundred cases in dogs, horses, colts, and bovines without recalling a single failure. In all of these cases the warts have disappeared quickly and in many instances after surgical and caustic treatments had failed. My advice

WE REITERATE:

"We produce anti-hog cholera serum and virus and nothing more; and we believe we do that well. Our patrons think so, too."

GUILFOIL SERUM COMPANY

Offices and Laboratory

18-20-22 North Second Street

KANSAS CITY KANSAS

It was a hot day in July.
And it was down in Sunny Alabama.

An old darky was assigned to the task of burning some trash along the roadside. The heat of the day as well as that of the fire caused him to complain to his master.

"All right," said the master. "Then go down into the cellar. Sort that pile of potatoes--put the bad ones in one barrel and the good ones in another."

The darkey went to his new job with vim and vigor. But after a half hour he emerged from the cellar and again complained to his boss.

"What's the matter now?" inquired the master.

"Dat new job's too hard on de judgement," replied the darkey.

But, listen, there's nothing difficult when it comes to "picking" the right kind of Grain Belt serum. Every drop of it is the same—potent, fresh, clean—perfect in every respect.

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Dr. H. Krueger, Mason City Territory

to the practitioner is to pin his faith in Fowler's soluton of arsenic in properly regulated doses as a routine measure in dealing with warts in all species of animals. Local applications in addition will hasten the recovery.

QUITMAN OPERATION FOR UMBILICAL HERNIA

In the November issue I read an article on the Purely Practical page, by E. L. Q., in reference to the use of a cork for umbilical hernia in small animals, but it is not clear to me whether the cork is inside or outside of the skin. Please explain.—S. H., Ia.

Reply

The operation referred to was performed in public for the first time by Dr. Quitman at the recent meeting of the Northwestern Illinois and Southwestern Wisconsin Veterinary Association. The patient in this case was a pig—a male pig. The sheath and penis was pushed aside and a cork previously selected as to size was pushed into the orifice, skin and all, and was then held fixed by drawing folds of skin over it with sutures. To set up some irritation that might hasten the formation of adhesions Dr. Quitman recommends subcutaneous injections of alcohol around the orifice after the cork has been thus fixed.

THIOSINAMIN

Where can I procure thiosinamin described as a cure for heaves in horses in the December issue of the journal? Would fibrolysin answer the purpose? A. J. L., Ohio.

Reply

Thiosinamin should be procured through the regular pharmaceutical supply houses. You will find the drug described in Winslow's materia medica. It has been largely superceded in this country with fibrolysin which is a double salt of thiosinamin and sodium sulphate. According to Simonnet and Medynski thiosinamin causes neither general nor local reaction when given hypodermically. Fibrolysin on the contrary does produce considerable pain and swelling at the seat of injection.

Fibrolysin has been recommended in this country for the purpose of "dissolving" hard, sclerotic tissues resulting from injury or disease. Its value for these purposes has never been positively established. However some have claimed to have obtained magical results. No

one can tell whether both of these agents will act the same on heaves because no one has tried fibrolysin so far as we know.

DOES COTTON SEED MEAL TAINT MILK?

A client of mine is complaining that his milk and butter taste of the cotton seed he is feeding his cows, and although I have assured him that he must look elsewhere for the cause of the taste he is determined that the cotton seed is the cause. Will you please give me your opinion? How much should be fed? O. R., Ind.

Reply

We do not believe that cotton seed meal feed in reasonable amounts will influence the taste of milk, cream or butter. It is possible he is feeding too much. A cow should get from one to two pounds a day, mixed with the silage or chop.

DAMIANA

What is Damiana? A client of mine says this drug has been recommended by a farm paper as a sure cure for non-breeding sows, and never having heard of the drug I have been unable to confirm or deny the truth of the statement. It is not mentioned in Winslow or Quitman.—F. D., Mich.

Reply

Damiana is an unofficial drug, the leaves of the Turnea aphrodisiaca a plant of Lower California and Mexico. It contains a volatile oil and a resin. Its aphrodisiac properties have been greatly exaggerated. It gained its reputation from the advertising "manhood-restorers" who prey upon the culpable, much like the gland-transplanters are doing today. If it would make a sow breed it would be quite a boom to the hog industry, but it won't. The problem of sterility in swine will not likely be solved by damiana.

The cry of the hour is better feeding; more eggs, more milk, more meat for the given amount of food.

The new light that is being shed on nutrition by research workers, carries one back to the first days of bacteriology when that field of study was opening up.

Thirty years ago the bacteriologist staggered his audiences with revelations that now common place knowledge, just as the chemist is just now staggering us with new and startling information about nutrition.

THE

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Manufacturers of

Anti-Hog Cholera Serum

Hog Cholera Virus

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ZELL-STRAUB BIOLOGICS

Zootechnic Notes

By E. Merillat, Associate Editor

HOW TO GET 40% MORE WINTER EGGS

You can get 40% more winter eggs by feeding Semi-Solid Buttermilk and cracked corn and oats or wheat instead of a standard mash containing 20% meat scrap, according to an experiment recently concluded by the Kentucky Experiment Station.

Forty per cent more eggs during November, December, January and February—think what this will do for your poultry income!

Feeding Semi-Solid Buttermilk instead of a mash also greatly simplifies the chore of feeding. It is much easier to see to it that the hens have the right amount of the right feeds at the right time than is the case where mash is fed.

Not even mash and milk together produce as heavy nor as economical egg production as Semi-Solid Buttermilk and grain.

This experiment indicates that one pound of Semi-Solid Buttermilk will produce as many eggs as five pounds of skimmilk.

MEAT CONSUMPTION DECLINING

Statistics published by the United States department of agriculture indicate that meat-eating in the United States has declined both in regard to per capita consumption and the number of food-producing animals to the population, and the cause is attributed to the difficulty of supplying the ever-increasing population with sufficient meat products, and at the same time provide a surplus for export trade.

The report which covers the period between 1850 and 1922 shows that the greatest decline is in the proportion of sheep to the human population.

The chief meat-eating nations (named on a declining scale) are Argentine, Australia, New Zealand and the United States.

URGE AMPLE SUPPLY OF PURE MILK FOR SCHOOL CHILDREN

Now that milk is served in many public schools throughout the country, the United States department of agriculture suggests that inspectors should make frequent visits to the schools to see that the milk is of good quality when delivered and that it is handled and served to the children in a sanitary manner. Inspectors in those cities where milk is not served in the schools are urged to advocate the adoption of the plan.

One of the duties of the inspector is to see to it that the milk does not stand for some time before being used. A good plan is to have it delivered just at lunch time, or, if this is not convenient, to see that there are facilities for icing and storing it. By taking samples at frequent intervals a close check can be kept on the methods of handling.

Milk for use at schools should always be put up in bottles to reduce the chances of contamination. Before the bottles are opened the tops should be thoroughly washed. Because glasses and cups may not be kept clean, it is best for the milk to be drunk directly from the bottle. The use of sipping straws is very satisfactory. Some dairies use special protective caps on bottles of milk sent to schools.

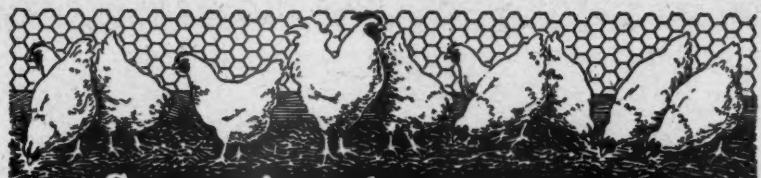
Our biggest job is that of helping to make agriculture a more profitable industry.

More than 1,500,000,000 pounds of butter was produced in the United States during 1921, an increase of 10.5% over 1920. The consumption during 1921 was 20,000,000 pounds more than the production, the difference being made up by importations and storage butter.—Report, U. S. Dept. of Agriculture.

MILCOLATE

If you have never drunk Milcolate, try it. Milcolate is whole milk and chocolate combined by a secret process. In city restaurants, where it is served, the demand has exceeded the supply. It is superior to other chocolate drinks in that it contains whole milk whereas many of the chocolate beverages contain less than 2% of butterfat. In the larger cities the milkman delivers it in bottles just as he does the morning's milk. It is very palatable, of a light gray color and not expensive. Milcolate promises to help the milk industry. It will; until someone produces and advertises a worthless substitute that is "Just as good."

A movement is on foot to take the dairy division from the United States bureau of animal industry and create a dairy bureau to take its place among the other bureaus of the department of agriculture.



Sensational test proves Semi-Solid Buttermilk triples Egg Yield at half the cost per dozen

Veterinarians Are Recommending Semi-Solid

The strong endorsement of thousands of users of **Semi-Solid** Buttermilk during the past seven years, plus official feeding tests, make **Semi-Solid** one of the leaders in the field of nutrition.

Veterinarians everywhere find it a reliable corrective, stimulant and tonic that aids digestion and promotes growth.

Advertisements similar to this are appearing monthly in most of the farm papers, acquainting farmers with the superior merits of the **Semi-Solid**. They make it easy for veterinarians to recommend **Semi-Solid** in their daily practice.

THE Ky. Exp. Station, in a sensational test conducted by Prof. J. H. Martin, famous poultry expert has proven **Semi-Solid** Buttermilk added to a ration composed of seven parts corn and three parts oats or wheat (feeds available on every farm) produce three times more eggs than flocks fed ordinary farm rations. Yet the cost per dozen is only one-half as large.

This remarkable test shows **Semi-Solid** Buttermilk and home-grown grains produce 40% more winter eggs than mash and meat scrap. Even flocks fed milk and high quality mash produce less eggs than birds fed just grain and **Semi-Solid**.

Gives June Flavor to January Feed

Semi-Solid Buttermilk puts the vitality and succulence in dry winter rations that makes fall litters grow like spring pigs. It has all the good qualities of green feed.

Semi-Solid Buttermilk is pure creamery buttermilk pasteurized and condensed to point of maximum feeding value per pound. Fed as we recommend it, it is your cheapest feed. Thousands of farmers use it extensively. Containers range from one gallon cans to 500 lb. barrels, 27 factories assure low freight costs and prompt delivery.

Write today for full detail of Ky. Exp. Station test and complete information on **Semi-Solid** Buttermilk and how to feed it. **Semi-Solid** Buttermilk is a trademarked product with its purity and quality supreme. Beware of inferior imitations of unknown quality.

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All Veterinarians want to increase their business.

How can they do it?

Fowler Serum coupled with Honest, Efficient Service is the answer.

It is Pure, Potent and Dependable. It may cost more but it pays the largest dividend.

Distributed by 400 Armour and Company Branch Houses.

FOWLER SERUM COMPANY

KANSAS CITY, KANSAS

A PROLIFIC BITCH AND SUCCESSFUL MOTHER

The accompanying cut shows fourteen pups, born in one litter, to an Airedale, belonging to Mr. William C. Brown, of Battle Creek, Michigan. Artificial feeding had to be resorted to for all of them, as the natural source of nutriment was entirely inadequate.

It may be of interest to know that the owners of these dogs gave them the same care they would have given human beings. The pups were taken from the mother, and only a certain number allowed to go to her at regular hours for food. The mother was fed with the same regularity. As a result, all fourteen lived and are in a healthy, thriving condition.

It goes without saying that the usual percentage of loss in large litters of any of the domestic multipara can be greatly reduced by good care of the mother and a little common-sense attention to the young during the crucial days of their development.

STERILE!

Every batch of Waite's Antiseptic Local Anaesthetic in ampules is sterilized and tested in our own bacteriological laboratory.

Waite's Anaesthetic with its antiseptic base to keep it sterile, requires no boiling — hence no evaporation to change it from an isotonic to a hypertonic solution. Get away from the soreness and after-pains that result from injecting a boiled-out, over-toxic, hypertonic anaesthetic. Use Dr. R. B. Waite's ready-to-use, time-saving anaesthetic; readily assimilated by the blood.

Waite's Anaesthetic is sold in the convenient ampule form—also in bottles.

$1.00 Box of Ampules for 25c

To introduce Waite's Antiseptic Local Anaesthetic we will send you $1.00 box of ampules on receipt of your professional card and 25c—or if you prefer a free sample, for your professional card only. Try it out on your most difficult cases of minor or major surgery where a local anaesthetic would be used. Note its quick, positive action—the perfect anaesthesia that lasts.

Sold only to recognized veterinarians by veterinary supply houses, wholesale druggists and dental depots.

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Check, Sign and Mail This Coupon

Enclose professional card or stationery. Only one $1.00 box of ampules for 25c to a veterinarian—money returned to anyone ordering twice.

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Enclosed find 25c for which send me $1.00 package of Waite's Antiseptic Local Anaesthetic in ampules. Enclosed find my professional card or letterhead for which send me free sample of Dr. R. B. White's Antiseptic Local Anaesthetic.

Name .....

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"As ye sow, so shall ye reap"

Plant seed that develops a satisfied clientele by using

Standard Serum

"It Prevents Cholera"...

Since it was first introduced Standard Serum was made by and sold only to qualified veterinarians.

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OAK POISONING—A REPLY

Replying to article by E. J. Foreman, Trinidad, Colorado, in the November issue, Is Shinnery Poisoning Hemorrhagic Septicemia, my answer would be emphatically "No." Shinnery poisoning, as we understand it on the plains section of New Mexico, is caused by a variety of oak resembling a shrub, growing low and spreading out over the ground; this is called "shin oak" and has caused losses in cattle for many years on the plains section east of Roswell.

Investigations made by the writer in Colfax county, in the Sacramento range in Otero county, and the plains section east of Roswell have not differed in the gross symptoms or post-mortem appearances but very little.

The principal lesions in hemorrhagic septicemia will be found in the buccal cavity and head, diaphragm, lungs and blood. The disease manifests itself quite suddenly, and as a rule terminates fatally in a short period of time.

The principal lesions in oak poisoning are found in dissecting the skin. On exposure to the air it turns intensely yellow, the gall-bladder may be enlarged and containing a very dark fluid, resembling shoe polish in solution. Hemorrhages may be found in the mesenteric, the nasal cavity may contain a dark viscid mucus, in some cases almost occluding the opening, the respiratory air offensive, coat starey, eyes sunken, and the abdomen tucked up. In the early stages, constipation is in evidence, later on followed by diarrhea. It was noticed that the animals preferred to lie down.

The urinary bladder will, as a rule, be found distended, in some cases rupture may have occurred. Decomposition sets in immediately after death. If animals are not skinned while they are warm, the process may have to be abandoned.

I believe the above are sufficient grounds to differentiate "oak poisoning" from hemorrhagic septicemia. As constipation is the initial process, this must be overcome by a laxative. If flux is in evidence the laxative is contraindicated. We found that good results were obtained by prompt stimulation with the following drugs:

Fluid extract of Belladona leaves
Fluid extra of Digitalis, of each.....20 grs.
Fluid extract of Nux Vomica..... 1 dr.
Aqua dist. Q. S. add..... 4 oz.

This mixture can be given three (3) times daily, when the alkaloids of the above drugs are available, hypodermic injections could be

SIMPLICITY SANITARY KENNELS

AFFORD THE VETERINARIAN A MEANS OF EQUIPPING HIS ESTABLISHMENT FOR THE PROPER HOSPITALIZATION OF SMALL ANIMALS AT MINIMUM COST

Canine Tables
Horse Slings
Casting Harness
Horse Operating Tables
Hopples
All Fully Guaranteed

Write for Prices or see your Dealer

VETERINARY SPECIALTY COMPANY
531 South Peoria Street, Chicago, Illinois.
J. T. Hernsheim, D. V. M., President.

given. If flux has to be combatted, Ergotin or its fluid extract in combination with the sulphate of iron could be given. Quinine in 30 grain doses was found to be very effective in the convalescent stage. This treatment was used in New Mexico a number of times, and gave satisfactory results.—E. P. Johnson, Extension Veterinarian. State College, N. M.

Comment: In justice to Dr. Foreman it should be stated that the caption of his article "Is Shinnery Poison Hemorrhagic Septicemia?" is ours. We justify the selection of this title on the grounds that many of our readers have reported remarkable results with hemorrhagic septia vaccine in cases that were thought to be oak poisoning. Ed.

HARMLESS, EFFECTIVE AND ETHICAL ADVERTISING

—Courtesy of C. W. Kelly, Sioux City Serum Company.

This is a picture of Dr. Abe Martin of the firm of English and Martin, Sheldon, Iowa, taken 50 years ago, and a reproduction of a float used at a 4th of July celebration in that city.

Snapped at the International

At the call of State Veterinarian Cloud, veterinarians of Fort Worth, Dallas and adjacent cities of that section of Texas, met at Dallas, November 25, and formed the Dallas-Fort Worth Veterinary Medical Association. Dr. Leon G. Cloud was elected president; Dr. A. E. Flower, first vice-president; Dr. J. C. Bittick of Fort Worth, second vice-president, and Dr. W. R. McCuistion, secretary-treasurer. An intelligence committee was appointed to co-operate with the state board of veterinary examiners in the matter of ridding the state of illegal practitioners.

Hairlessness is a common disease among the pigs of certain districts of Wisconsin. In Sawyer county alone more than 400 such pigs were born during last year according to a press report.

The American Society for the Prevention of Cruelty to Animals offers a prize of $10,000 dollars for a stunning device for slaughtering animals that will meet with its approval. Dr. W. Reid Blair made an exhaustive study of the subject in European slaughter houses last summer.

Dr. John F. DeVine of the Goshen Laboratories was accompanied by Mrs. DeVine on his trip to California where he contributed to the program of the Veterinary Practitioner's Weeks held under the joint auspices of the California State Association and the University.

Let us not forget while throwing the scrubs into the discard that the additional milk and meat produced by their pure-bred successor will sell better if we advertise them as healthful instead of as harmful foods.

It does not pay to laugh at the mistakes of others, because sooner or later there will be a laugh on you.

LET US TAN YOUR HIDE.

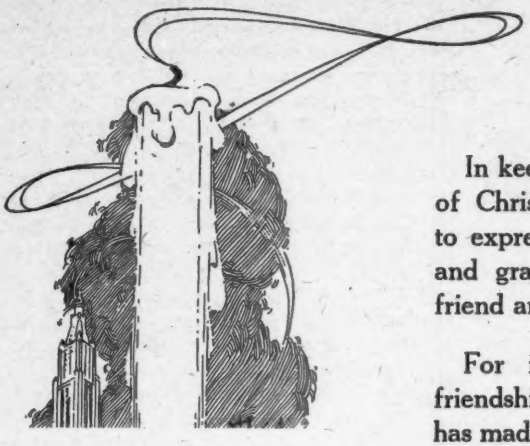
Horse or Cow hide, Calf or other skins **with hair or fur on,** and make them into coats (for men and women), robes, rugs or gloves when so ordered: or we can make your hides into Oak Tanned **Harness or Slaughter Sole or Belt Leather; your calfskins into Shoe Leather,** colors Gun Metal, Mahogany Russet or lighter shades. Calfskins tanned in the lighter shades of shoe leather, also make **elegant stand and tabi covers;** great for birthday, wedding and holiday gifts.

LET US FIX YOUR WORN FURS

fashion, repair and reshape them if needed. Furs are very light weight, therefore it would **cost but little** to send them in to us by Parcel Post **for our estimate of cost,** then we will hold them aside awaiting your decision. Any estimate we make calls for **our best work.**

Our illustrated catalog and style book combined gives a lot of useful information. It tells how to take off and care for hides. About **our safe dyeing process** on cow and horse hides, calf and fur skins. About dressing fine fur skins and making them into neckpieces, muffs and garments. About our **sharp reduction in manufacturing prices.** About Taxidermy and Head Mounting.

The Crosby Frisian Fur Company,
571 Lyell Ave., Rochester, N. Y.



In keeping with the Spirit of Christmas-tide, we wish to express our appreciation and gratitude to you—our friend and patron.

For it has been your friendship and good-will that has made possible for us our success of this year—our new building — our hundreds of others patrons.

And so, at this time, we cordially send to you our most sincere thanks and wishes that health, happiness and prosperity may attend you and yours throughout the coming year.

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CROWN PRINCE A VETERINARIAN

It is not generally known that the degree of Doctor of Veterinary Medicine was conferred on the Crown Prince of Germany by the veterinary school of Berlin during the war. The circumstance is interesting. The king of Bavaria, while visiting the 5th German Army, which the Crown Prince commanded before Verdun, on meeting Guntherberg, the chief veterinarian of that army, addressed him as "confrere" and explained the salutation by saying that he had been named Doctor of Veterinary Medicine by the Bavarian veterinarians. Acting on the suggestion, Guntherberg consulted Professor Eberlein of the Berlin school. A few days later a staff officer announced that the Crown Prince was agreeably surprised at the delicate attention of the veterinary corps. The degree was duly conferred and on December 12, 1916, at Stenay, general headquarters of that army, Guntherberg was invited to dine with the Crown Prince and was presented with a photograph bearing his autograph.

The first of a series of meetings to promote professional interest and efficiency among veterinarians of the United States bureau of animal industry of Illinois was held in Chicago, Nov. 11, 1922, under the auspices of the Illinois state and Chicago local association of the bureau of veterinarians. Dr. A. A. Swain spoke at length on the wisdom of organization bringing out all the fundamental principles and many details about the advantages of united effort. Drs. L. Enos Day and W. M. Neil exhibited a number of new pathological specimens and Dr. Hannon read a thesis on lobar pneumonia.

OHIO ORGANIZES A PRACTITIONER'S ASSOCIATION

A new state-wide association was organized when a number of practitioners convened and formed the Ohio State Veterinary Practitioners' Association and elected the following officers: T. E. Bowsher, Wapakoneta, president; T. B. Pinney, Ostrander, vice-president; and A. B. Anderson, Piketon, secretary-treasurer. Columbus was selected as the place for the first annual meeting and the dates fixed are January 10-11, 1923. The objects of the association are best told in the secretary's own words: "This association is not organized to scrap any other organization. We are ready to work with the A. V. M. A. or any other organization so long as they work for the good of the veterinarian. We feel that the A. V. M. A. is not

doing as much good as we believe it should for the practitioner and too much for the few and that these few can not get very far with anything that will do us any good as a whole."

CALIFORNIA SHORT COURSE

The California Veterinary Practitioner's Week, arranged jointly by the California Veterinary Medical Association and the Division of Veterinary Science of the University of California, will be held at the University Farm, Davis, January 2 to 5, 1923.

Three special veterinary lecturers from the east will be present at the meeting. Dr. W. E. Muldoon, from the Kansas State Veterinary College, will lecture on "Therapeutics and Small Animal Practice," Dr. Adolph Eichhorn, from the Lederle Antitoxin Laboratories, will talk on "Rabies" and "Anthrax." Dr. J. F. De Vine, of the Goshen Laboratories, will talk on "Abortion and Sterility in Cattle and Horses."

Members of the staff of the College of Agriculture of the University will perticipate in the program, as well as a number of practitioners in the state.

The program has been arranged by the committee along the lines desired by the practitioners in California and a large attendance is expected. The course is open to all graduate veterinarians and such men in near-by states are cordially invited to attend.

Berkeley, Calif. Geo. H. Hart, Sec'y.

Among the surgical cases treated at the veterinary department of the Washington state college last month was an Airedale dog that had more than a hundred porcupine quills impinged about its face and mouth. Although the dog's battle with the porcupine had only occurred a few hours before, many of the quills had already worked their way through the tongue, cheeks and lips.

Dr. Geo. H. Carter of Saginaw, Michigan died at his home in that city in November after a brief illness. He was 56 years old and had practiced at Saginaw for over 30 years. He was a native of Ontario, graduated at the Ontario Venterinary College in 1888, and two years later moved to Saginaw where he became a leader among the practitioners of the state.

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DIAGNOSIS OF TRAUMATIC PERICARDITIS

When a nail or wire lodges in the reticulum and passes through the stomach wall the animal will exhibit typical symptoms of indigestion and if treated they will sometimes appear to recover for a time. In a few days, however, as the object works farther in symptoms of heart trouble soon develop. The heart will act as if it is stimulated; there will be palpitation, fast beating and a sort of knocking motion. It can be heard several yards away if you get the case to examine at that period. When the exudates fill in around the heart, sort of smothering it, the heart-beats become less perceptible. The animal will lie down and get up very stiff; in walking around or executing little movements the typical grunt of indigestion or impaction of the rumen will be observed. As the object passes into the pericardium the heart seems to retract from the fluid and gives a sort of tympanic sound; but these sounds may be due to digestive gasses passing along the object into the pericardial sac, or to fermentation of the abnormal pericardial fluid.

Upon deep pressure about the heart the patient will evince pain, shrinking away from you. Then there will be the typical symptoms of pleurisy and pneumonia. At this stage the condition may be confused with these diseases. As the fluid encroaches upon the auricles the pressure causes the jugular pulsation and the characteristic edema. The temperature is less significant; it may be 99 or as high as 107 degrees Fahr. A little exercise causes great exhaustion and a sort of consumptive cough develops.

To make the differentiation from indigestion it is best to use eliminative treatment; your poor results will be the guide; then the enlargement of the veins of the neck and sternum are very diagnostic. There is no one diagnostic symptom but by grouping them one may become practically sure of diagnosing 100 per cent of the cases. The great exhaustion that comes on from slight exercise has been helpful in making a diagnosis of suspected traumatic pericarditis. While vaccinating some calves recently one of them got away and became exhausted almost immediately. When I told the owner I suspected a nail penetrant in the stomach he laughed, saying: "Don't expect me to believe that," and to prove his contempt for my opinion he got on his horse and ran the calf only a little distance when it dropped

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dead. The autopsy confirmed the diagnosis.—(Dr. S. E. Nelson, Annual Report, Idaho Vet. Med. Assn., 1922.)

SPHERICAL DILATATION OF THE ESOPHAGUS

I would like your advice on a case of choke. About two weeks ago I treated a gelding for choke. He had been eating ear-corn. A hypodermic injection (eserin 1 gr.) brought relief in about two hours. Yesterday I was called to see the same horse and found he was choked again. There was an enlargement at the base of the neck. I gave a hypodermic of eserin but did not succeed as two hours later he was reported to be worse. Calling again I found him breathing hard and in a critical condition generally. I passed the stomach tube but could not wash out the obstruction. Death occurred during the night.—F. E. G., Ill.

Reply by E. L. Quitman

Your treatment was correct enough as far as it went. When called the last time after eserin had failed you should have included one and a half to two grains of pilocarpin hydrochlorid, and then followed this a half hour later with one-half to three-fourths of a grain of atropin sulphate to overcome the esophagismus.

Your diagnosis seems correct although you do not state whether or not the dilatation was impacted with food. The immediate cause of death might have been acute dilatation of the stomach. The common cause of choke in horses is gluttonous eating, and dilatations large enough to cause bulging at the base of the neck come from a number of previous impactions. Pulling heavy loads have nothing whatever to do with the cause of choke.

The death of a popular young practitioner not previously reported is that of Dr. Jasper B. Vance, September 13, 1922, at the home of his parents at Indianapolis. Dr. Vance who was only 22 years old was born at Anderson, Ind., October 20, 1901, graduated at the Indianapolis Veterinary College in 1922 and was practicing with his father, Dr. J. C. Vance, a prominent practitioner of that city, when stricken with an attack of acute appendicitis that ended fatally in spite of a timely operation. The death is an especially sad one in view of the popularity of both father and son and of their known devotion to each other.

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ANTHELMINTIC MEDICATION

(Continued from page 30)

Tapeworms: Fast overnight. Arecoline hydrobromid by mouth, one-eight grain to small dogs; one-fourth grain to dogs of average size. No purgative; the drug itself is purgative. Worms usually pass in half an hour to an hour, but tapeworms of the genus Dipylidium may pass for four days after tapeworm treatments, the worms in a series of experiments coming away as follows: First day, 91 per cent; second day, 7.4 per cent; third day, none; fourth day, 1.6 per cent. This tapeworm treatment, developed by Lentz, has been highly recommended on the strength of clinical experience, but no critical tests have been published giving exact information in regard to its efficacy. No dosage for large dogs has yet been given, but it seems probable that the dose should be increased up to one-half grain for large dogs.

A treatment developed by Dr. E. T. Davison is as follows: Fast overnight. At 10:00 a. m., for dogs of average size, give four 10-grain capsules (those holding 10 grains of quinine) filled with oleoresin of male fern, and follow with an ounce of water or milk, preferably milk. Forty-five minutes later give four 10-grain capsules full of freshly ground areca nut. It is essential that the areca nut be freshly ground; after grinding it gradually loses its potency and finally becomes inert. Follow the areca nut with an ounce of milk or water as above. Worms usually pass in a half hour to an hour. After dosing tie the dog's head as high as it can be held without choking, to prevent vomiting.

Oleoresin of male fern, 3.75 cc. (1 fluid dram) in capsules, followed immediately by 32 cc. (1 fluid ounce) of castor oil, is highly effective against tapeworms. The theory that castor oil increases the toxicity of male fern is not supported by experience and experiments; critical tests show that castor oil is protective to a considerable extent against the toxic effects of male fern where the two drugs are given together.

Kamala, 2 to 8 gms. (0.5 to 2 drams) in syrup, is very effective against tapeworms.

Tapeworms of the genus Dipylidium, the double-pored tapeworms of carnivores, are difficult to remove entirely owing to the habit these worms have of sewing the head and the anterior portion of the strobila into the mucosa. Thus protected the worm may lose the posterior portion of the strobila from anthelmintic

action, but the head will remain to renew the infestation. Treatments must be repeated as often as necessary. As fleas and lice are intermediate hosts, eradication of these worms calls for eradication of the insect hosts or reinfestation usually follows in a short time.

Flukes: According to Jeffreys, carbon tetrachlorid as given above for ascarids will remove the intestinal flukes from foxes, and it may prove equally effective in removing these flukes from dogs.

TREATMENTS FOR CAT PARASITES

Ascarids: Fast overnight. Oil of chenopodium, 0.05 cc. per kilo, immediately preceded or followed by a half ounce to an ounce of castor oil. Chenopodium is twice as toxic for cats as for dogs and should be used in the diminished dose given here. The carbon tetrachlorid treatment is safer.

Carbon tetrachlorid, 0.3 cc. per kilo, to animals fasted overnight. No purgation. Carbon tetrachlorid is twice as toxic for cats as for dogs, but the safety factor for the therapeutic dose is about 27, whereas that for chenopodium as given above is about five.

Hookworms: Carbon tetrachlorid as above.

Tapeworms: The same drugs that are used to remove tapeworms from dogs may be used to remove tapeworms from cats, the dose being diminished in accordance with the size of the animal.

TREATMENTS FOR FOX PARASITES

Ascarids: Carbon tetrachlorid in capsules at the rate of 0.3 cc. per kilo, as for hookworms in dogs. It is reported that the use of a small balling gun and a speculum is the most satisfactory mode of administering these capsules to foxes. Foxes are highly susceptible to poisoning by chenopodium and the use of this drug on foxes is inadvisable. The efficacy of carbon tetrachlorid against ascarids in foxes is reported as approximately 100 per cent.

Hookworms: Carbon tetrachlorid as given above for ascarids. Efficacy, 93 per cent or higher.

Whipworms: The treatment recommended in the case of the dog whipworm would probably be effective, using suitable doses, but unless treatment was very necessary the difficulties of giving repeated doses of cantonin to foxes would not permit it.

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Tapeworms: The treatments recommended in the case of dog tapeworms would probably be effective, using suitable doses.

Flukes: Carbon tetrachlorid, as given above for ascarids, is reported by Jeffreys as 100 per cent effective in removing intestinal flukes from foxes.

TREATMENTS FOR POULTRY PARASITES

Large roundworms (Ascarids perspicillum): A mass treatment recommended by Herms and Beach is as follows: For 100 birds, steep one pound of finely chopped tobacco stems for two hours in water enough to cover them. Mix the stems and the liquid with one-half the usual ration of ground feed. The day previous to treatment withhold all feed, giving water only. After fasting 24 hours, feed the mash thus prepared, and two hours after it is cleaned up give one-fourth of the usual amount of ground feed mixed with water in which Epsom salt has been dissolved at the rate of 11 ounces for each 100 birds. The treatment should be repeated 10 days later.

For a mass treatment where only a single treatment is given, use one teaspoonful (approximately one fluid dram or 3.75 cc.) of oil of chenopodium thoroughly mixed with a moist mash, for each 12 birds.

For individual treatments, oil of chenopodium, 0.2 cc. in castor oil, 2 cc., has been found to remove 69 per cent of these worms; turpentine, 2 cc., in castor oil, 8 cc., has been found to remove 76 per cent of these worms.

Cecum worm (Heterakis papillosa): Rectal injections of oil of chenopodium, 0.1 cc., in a bland oil (as cottonseed oil), 5 cc., to birds weighing 1.5 pounds (ca. 700 grams), given by means of a hard rubber rectal syringe, infant's size, has been found to remove 90 per cent of these worms. Double the dose for birds weighing three pounds or over. The tip of the syringe should be passed along the floor of the cloaca.

For a mass treatment, the tobacco treatment given above for the large roundworm has been found, when given once and not repeated, to remove about one-fifth of these cecum worms. If repeated at intervals of a month this might serve as a control measure of some value.

Spirurida: We have as yet no known effective treatment for the spirurid worms which occur more or less embedded in the tissues of the digestive tract of poultry.

Tapeworms: No satisfactory treatment has yet been established for tapeworms in poultry. A mass treatment which has been recommended is as follows: A gallon of a mixture of wheat and oats, to which is added a small tablesspoonful of concentrated lye, is cooked slowly for about two hours and allowed to cool. The birds are fasted for 15 hours and then given as much of the mixture as they will eat, with plenty of water.

One of the things to remember about anthelmintic medication in dogs is that the mortality may be greater among the dogs than among the worms.

It does not do much good to advertise veterinary science among ourselves. We know ourselves well enough and we do not employ one another. Our advertisements should go out to the farmer.

"Help the practitioner" is not the selfish plea of the man who practices as many would have us believe. It is the plea of all thinking men who have foresight enough to know that if veterinary practice becomes unprofitable there will be no veterinary profession.

Drs. M. C. Hall, R. R. Dykstra, W. L. Boyd and Van Es were among the contributors to the program of the Nebraska State Veterinary Medical Association held at Lincoln, December 12-13.

Dr. Bohuslav Sykora, veterinarian of the state hygienic laboratory, Prague, Czechoslavakia, and a fellow of the Rockefeller Foundation, is taking special work at the University of Chicago under a commission of his government. During a friendly call at the office of VETERINARY MEDICINE he proved to be an exceptionally brilliant young man with a broad knowledge of veterinary conditions in Europe. He is a graduate of the veterinary school of Vienna and has taken graduate work in Germany, France and Switzerland, speaks and reads all the chief European languages, and has a close acquaintance with all of the prominent veterinarians abroad.

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Looking Backward

A Look Into the Past Unfetters the Mind, Gives a Clearer Conception of the Present, and Tends to Strengthen Our Confidence in the Future

History and Activities of the Bureau of Animal Industry*

By Dr. U. G. Houck

FROM the day the United States bureau of animal industry came into existence it has been striving to help protect and develop our livestock industry and to promote our export trade. As a result of co-operative efforts, the national government, state governments, the veterinary profession, state agricultural colleges and livestock owners can review with pride and satisfaction the marked development of the livestock industry and the subjugation of its deadly enemies.

It would be a pleasure to review the achievements which figure prominently in the history of the bureau, but time will permit me to give you only a glimpse of some of the most important facts connected with the establishment of the bureau and the present activities of this national veterinary organization, which has earned the confidence and respect of our states and of foreign countries.

Importance of Animal Industry Foreseen

Animal industry always has figured as a very important part of agriculture—it is an essential to successful agriculture. Before there existed any national agricultural organization the Commissioner of Patents in the performance of his official duties was brought into close personal contact with inventors of agricultural implements. In discussing agricultural subjects with inventors and other persons interested in farming, he was frequently requested to furnish information and advice. In this way the Patent Office gradually came to be recognized as the chief source of official information on agricultural and livestock matters. As early as January, 1839, Henry L. Elsworth, then commissioner of patents, called attention officially to the desirability of establishing a division in the office of patents to give attention to agricultural and livestock matters. As a result of Commissioner Elsworth's continuous efforts and a growing demand, an agricultural division of the U. S. patent office was established in 1860. This division grew rapidly in importance and usefulness and was superceded by the department of agriculture, which was established by the act of congress of May 15, 1862, and entered into operation July 1 of that year.

Animal Losses the Incentive

By 1869 the losses from animal diseases were attracting much attention in this country, but up to that time no action had been taken by the department of agriculture to give any assistance to livestock raisers further than to publish in the yearly reports some articles on livestock production and care of animals. Urgent demands prompted the commissioner of agriculture to recommend in his report to congress in 1869 the establishment of a division of veterinary surgery in the department of agriculture; this recommendation was repeated in 1870, but it was not until the autumn of 1883 that Dr. D. E. Salmon was called to Washington to establish the new veterinary division.

Dr. Salmon's First Problems

Dr. Salmon was an investigator of animal diseases, and the veterinary division was established with the view of providing facilities for the investigation of such diseases. Hog cholera, contagious pleuro-pneumonia, sheep scab, Texas fever, anthrax, blackleg, contagious abortion, and fowl cholera had existed in this country for years. There had been outbreaks of foot-and-mouth disease and equine influenza and the losses from sporadic diseases were increasing yearly. Our cattle were required to be slaughtered on the English docks where they were landed because of the existence of contagious pleuro-pneumonia in the United States, and our pork was prohibited from entering most foreign markets as it was alleged to be infested with trichinae.

Therefore, in connection with the investigation of diseases there was much need for a veterinary organization in the department of agriculture, provided with funds and authority

to act in preventing and controlling communicable diseases, to prevent the importation of foreign plagues, to collect and disseminate information that would be valuable to stockgrowers and to enable us to secure free entrance of our animals and their products into the markets of foreign countries.

Pleuro-Pneumonia Was Spreading

The presence of contagious pleuro-pneumonia in some of our eastern states and the necessity of eradicating it in order to prevent its spread to the herds on the open plains and to protect our export cattle trade was the most important factor leading to the establishment of the bureau of animal industry by act of congress of May 29, 1884.

Desirable as we now know a national executive veterinary agency to be, the bill creating the bureau did not get through Congress without serious opposition. Some members of Congress objected on the grounds that such a national bureau would infringe upon the authority of the states, and notwithstanding the fact that with the single exception of Massachusetts no state had been able thus far to cope effectively with contagious pleuro-pneumonia, they insisted that such matters should be left to the states to handle as they saw fit. Others based their objections on the assumption that the proposed organization would envolve into a strong political machine and would prove to be very expensive. When the necessity of eradicating contagious pleuro-pneumonia was advanced, some congressmen boldly expressed their doubts of the existence of the disease in the United States. The veterinary profession, then struggling for recognition in America, was ridiculed and objection was made to placing a "horse doctor" at the head of the proposed bureau.

Missouri Congressman to the Rescue

The bill was championed on the floor of the House by Hon. William H. Hatch of Missouri, then chairman of the committee on agriculture. It was said that patiently Mr. Hatch explained the various features and provisions of the bill; skillfully and often with a touch of humor he met objections, forcefully he urged the importance of the measure and in his defense of the veterinary profession he reviewed the achievements of three score or more prominent veterinarians in various countries. In closing his address, Mr. Hatch said:

"It is true the profession is still small, but it is rapidly growing; it has fought its way against every obstacle and discouragement; its

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members have sought education and knowledge in every department of science and in every language where assistance was to be found; and the appreciation of its usefulness, beginning with the masses, has permeated all classes of our society, until praise and favor have taken the place of contumely everywhere with the single exception of the House of Representatives of the United States.

"Dr. Salmon, the present veterinarian of the Department of Agriculture, whose exhaustive report is embodied in the report made by the committee on agriculture accompanying this bill, contains the latest information on the subject of pleuro-pneumonia, its existence and spread in the United States. That paper is published in the RECORD, and as an exhibition of scientific knowledge and research as well as literary composition, will compare favorably with the effort of any gentleman who has spoken for or against this bill."

B. A. I. Born May 29, 1884

The strength of the opposition to the establishment of a federal B. A. I. is apparent from the fact that the vote in the house of representatives stood 127 against and 155 in favor of it. The bill met less opposition in the senate and received the approval of the President on May 29, 1884.

PLEURO-PNEUMONIA THE FIRST BIG TASK

The first great task to which the new bureau directed its attention was the eradication of pleuro-pneumonia; it was greatly hampered in the beginning through a restriction in the organic act limiting the personnel of the bureau to a chief, a chief clerk, and a force not to exceed 20 persons—this defect in the law was not corrected until July, 1886.

Disease Was Spreading Over Wide Areas

The previous efforts of the veterinary division and the states to eradicate pleuro-pneumonia had not proved effectual on account of the failure of the states to co-operate effectively with the veterinary division or with each other; they would not pass necessary laws nor appropriate sufficient funds, and persisted in applying only temporizing measures in compliance with the demands of cattle dealers and others. As a consequence, the disease had spread from the foci of infection on Long Island, where it first appeared in the United States in 1843, until by 1884 it had reached Pennsylvania, New York, New Jersey, Maryland, Virginia, West Virginia, Connecticut,

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Co-operated With States

After the new bureau began to co-operate with the states, eradication progressed more rapidly and permanent results were obtained. The last case of the disease in the United States was found in the suburbs of Newark, New Jersey, March 25, 1892. The United States was the first of the large nations of the world up to that time which, having been once extensively infected with contagious pleuro-pneumonia, was able to completely extirpate it. The bureau, working in co-operation with the states, accomplished the first great task it undertook and the confidence inspired helped to increase the demand among livestock producers for federal assistance in controlling and eradicating other destructive diseases.

First Reorganization

The asumption of increased duties necessitated a reorganization of the bureau, and on April 1, 1891, it was reorganized into:

The Inspection Division,
The Division of Pathology,
The Division of Field Investigations and Miscellaneous Work,
The Quarantine Division.

The names of the divisions indicate in a general way the duties assigned to each.

Present Organization

The bureau has grown from the original force specified by the organic act to a personnel numbering at present over 4,000, and from the original office of the chief and the experiment station, it has expanded so that now the bureau is composed of an experiment station, eleven divisions and six offices as follows:

Name of Division	When Established	Work Commenced By Bureau
Pathological Div.	April 1, 1891	May 29, 1884
Dairy Division	July 1, 1895	July 1, 1895
Biochemic Division	July 1, 1896	Jan. 1, 1890
Zoological Division	July 1, 1806	Aug. 1, 1888
Animal Husbandry Div.	Jan. 1, 1910	July 1, 1901
Field Inspection Div.	Sept. 1, 1913	May 29, 1884
Meat Inspection Div.	July 1, 1913	Aug. 30, 1890
Tick Eradication Div.	May 1, 1917	May 29, 1884
Tuberculosis Erad.	May 1, 1917	Jan. 1, 1907
Hog Cholera Div.	April 16, 1919	July 1, 1913
Virus-Serum Control	July 1, 1920	Feb. 17, 1917
Quarantine Division	April 1, 1891	May 29, 1884

Recently the miscellaneous division was merged with the office of personnel and the quarantine division with the field inspection division.

Recently the miscellaneous division was merged with the office of personnel and the quarantine division with the field inspection division.

The rapid growth of the bureau also is apparent from the fact that the act appropriating funds for the current year carries an appropriation of $9,974,476, which is about one-

fourth the entire appropriation for the department of agriculture.

In keeping the records of expenditures for the present year, it is necessary for the office of accounts to carry a charge account with approximately 160 different projects, such as eradication of sheep scabies, eradication of tuberculosis from purebred herds, investigation of animal abortion, post-mortem inspection of animals, etc.

ACTIVITIES OF THE BUREAU

The activities of the bureau have been directed along educational, research and regulatory lines and cover a wide range. You are familiar with what has been accomplished in the eradication of contagious pleuro-pneumonia, foot-and mouth disease, dourine, sheep and cattle scabies, the discovery of the cause of Texas fever and hog cholera and the means provided to combat these diseases, the accomplishments of our experiment station and laboratories in the investigation of tuberculosis, diseases of fowls, contagious abortion, dairy matters and the perfection of apparatus and methods. One of the outstanding achievements has been the success in keeping foreign plagues out of our country. Our quarantine stations have proved effective barriers against invasions of foot-and-mouth disease, rinderpest and surra, even though since the World War the United States has been surrounded by infected countries with which we engage extensively in commerce.

Foreign Animal Plagues Successfully Kept Out

The United States bureau of animal industry really deserves more credit for preventing the introduction of destructive diseases into the United States than it does for its success in eradicating those with which we have had to contend. Since the bureau was established in 1884 none of the dreaded foreign plagues have gained access to the United States in the bodies of imported animals.

WORK ON EXPERIMENT FARMS

The bureau is engaged in a variety of projects at the present time outside of Washington:

1. Sheep breeding, lamb production and wool studies are conducted on 58,000 acres near DuBois, Idaho.

2. A horse breeding project is progressing on a 1,280-acre farm at Buffalo, Wyoming, with a view of developing a general utility breed of horses.

3. Swine disease investigations are being conducted on a 50-acre farm at Ames, Iowa. It was here that the discovery was made that hog cholera is caused by a filterable virus and where the antihog-cholera serum treatment was developed.

4. The Morgan breed of horses is being rehabilitated on a 1,000-acre farm near Middlebury, Vermont.

5. Poisonous plant investigations are conducted on 200 acres of land 17 miles from Salina, Utah.

6. Investigations in the control of sheep parasites are being pursued on a 160-acre farm near Vienna, Va.

7. Eleven thousand five hundred acres of land near McNeill, Miss., are used in conducting demonstrations in beef, hog and sheep production.

8. Investigations of the problems encountered in establishing dairying in the irrigated sections are under way on 300 acres of land of the Huntley reclamation project, near Osborne, Montana.

9. Investigations of problems encountered in establishing dairying in dry land sections are being conducted on 353 acres of land at Ardmore, S. D.

10. Dairy cattle demonstrations are conducted at the Woodward, Oklahoma, field station, and on a farm of 160 acres adjoining the station.

11. Beef cattle, dairy cattle, mule breeding and feeding experiments and demonstrations are conducted on a 500-acre farm near New Iberia, Louisiana.

12. The most important of the Government experiment farms is located at Beltsville, Md., 11 miles from Washington. A number of projects of interest and importance are being conducted on this 475-acre farm, among which are the following:

13. A 20-year breeding experiment to determine the best methods of fixing grade production in dairy cattle.

14. A nutritional project to determine the precursers of milk.

15. Dairy herd management investigations.

16. Feeding experiments with different by-products of the industries and 100 different silages.

17. Swine investigations in breeding, feeding, management and soft pork.

18. Sheep investigations in breeding, feeding, lamb production and wool studies.

19. Milk investigations, including breeding and feeding.

20. Poultry investigations involving breed-

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Happy New Year

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A full line of Veterinary Supplies

ing, feeding, nutrition and incubation.

21. Genetic research work that is proving of great interest to scientists in this country and abroad.

22. The work at Huntley, Ardmore, Woodward and New Iberia is conducted in co-operation with other bureaus or with state experiment stations. In addition to the farms specified, beef feeding and dairy experiments are conducted on a number of other farms in co-operation with individual owners.

23. The creamery at Grove City, Pa., is another important field station. Here the dairy research results obtained in the Washington laboratories are tested on a commercial scale under commercial conditions, as for instance, the manufacture of American, Camembert, Roquefort and Swiss cheeses which compare very favorably with the best products produced in foreign countries.

Dr. A. M. Gow, who resigned the office of state veterinarian of Arkansas because of ill health last year, is now located in Denver, Colorado. Dr. Gow is now engaged in a commercial enterprise.

Dr. C. A. Predmore, who for many years supervised the Wichita plant of the United Serum Company, is reported to be in a serious condition in a sanitarium near St. Louis, Mo.

Dr. H. C. Curry, vice-president of the United Serum Company, has assumed charge of the St. Louis plant. He takes the place of Dr. H. R. Schwarze, who resigned recently.

Scotch Triplets, property of A. C. Hansen, Willias Kansas, born July 27, 1922. The dam is Lora sired by

Dr. F. D. McMahon, of Jerseyville, Illinois, was elected secretary of the Jersey County Fair Association at a recent meeting of the directors of that organization.

Kansas Veterinarians are reminded that the Second Annual Veterinary Conference given by the agricultural college will be held February 5-10, during Farm and Home week.

Dr. John B. Gingery of Muscatine, Iowa, was initiated into the appendicitis club a few weeks ago and survived the ceremonies.

Mr. J. E. Brooks retains the presidency of the United Serum Company and will remain at the company's offices in Kansas City. Dr. John B. Thrower remains production manager at the Kansas City plant and Dr. J. R. Severin, of the Wichita plant.

The United Company has opened a new office in Indianapolis, where Dr. Victor Rasmussen will be in charge.

Nampa, Idaho, boosts its dairy interests by employing a veterinarian to supply its city council with information about sanitary condition of the cows and dairies of the neighborhood and publishes a monthly report in order that its patrons may know the quality of the milk they purchase.

Chancellor. The sire of the calves is Clansman, a straight Scotch. Courtesy of Dr. Conrad, Sebatha, Kansas.

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BUSINESS OPPORTUNITIES

For Sale, Exchange, Help Wanted, etc., $2.00 for 25 words or less; additional words 8 cents each. Send cash with order. Add 25c extra for correspondence when replies are sent in care of Veterinary Medicine

FOR SALE

FOR SALE—Anti-Fis-Tract is a proven remedy for all fistulous tracts, actinomycosis, chronic abscesses, etc. Full directions. $1.00 per dozen. Charges prepaid. I. G. Wimsett, D.V.M., Wellington, Kans.

FOR SALE—Veterinary Practice. Dray line auto livery. Price right, if sold soon. Good business for young man. Address Dr. G. W. Crow, Saunemin, Ill.

FOR SALE—Veterinary Hospital and Practice. In rich Southeastern Missouri farming district. Hospital equipped with Simplicity table and Ajax stocks. County seat. Address No. 715, care of VETERINARY MEDICINE.

I HAVE A FEW PAIR OF REGISTERED SILver black foxes for sale. This is the center of the black fox industry of the United States. Dr. F. U. Steele, Muskegon, Mich.

FOR SALE—Simplicity Equine Operating Table. Three movement model. Only slightly used. Will sell for $150.00 cash, f. o. b. Central Michigan. Address No. 713, care of VETERINARY MEDICINE.

FOR SALE—Pammel's "Manual of Poisonous Plants." Price $7.50. Address orders to: Prof. L. H. Pammel, Iowa State College, Ames, Iowa.

POSITIONS, LOCATIONS, ETC.

WANTED—One or two year student who wants hospital experience, is willing to assist in caring for animals, and will work for reasonable salary. City of 35,000. Practice consists of 60 per cent. equine and bovine; balance canine. Modern hospital and laboratory equipment. State lowest salary in first letter. Address Dr. X. G. May, 409 North B. St., Ft. Smith, Ark.

VETERINARY PRACTICES, POSITIONS, ETC., furnished and handled for sale in 48 states. Physicians, dentists and nurses furnished and located. Drug stores for sale and drug positions in all states. F. V. Kniest, Peters Trust Bldg., Omaha, Neb. Established 1904.

POSITION WANTED — By graduate veterinarian. Age 31. Married. American; temperate; Protestant. Registered in Indiana. Consider position in any state. Eight years general practice. Address No. 714, care of Veterinary Medicine.

WANTED—Silver fox. We pay $500.00 each for fine skins. We buy all you supply. Write to us for information as to how to raise the Silver Fox. Duffus Silver Fox Store, 21 West 30th St., New York City.

MAN to assist in manufacture of soaps, disinfectants and simpler chemicals. Overall position. Ground floor opportunity. An established house. Give details and salary wanted to start. Address 416, VETERINARY MEDICINE.

WANTED—Have burned out completely and want to buy full veterinary equipment. Address: T. A. Shirley, D. V. S., Moundville, Mo.

POSITIONS DESIRED BY VETERINARIANS—One wishes place on stock ranch in the West, or go to South America; 23 years' experience. Also veterinarian desires position representing some firm in Iowa, with headquarters at Des Moines, Iowa, (salesman, etc.); also veterinarian specially trained in pathology and bacteriology, graduate Univ. Iowa, Dept. Veterinary Science and two years Ohio Univ. in post graduate work in pathology and bacteriology; broad experience; just getting B. Science degree. Will teach or take position with manufacturing firm, technician, public work, research work. Also veterinarian desiring position as teacher in other work; speak German, English and Spanish. Also consider practice in West. Can make investment of $5,000 or more. Specially trained in some lines. Address F. V. Kniest, Peters Trust Bldg., Omaha, Nebr.

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The case you have been waiting for.

Made in the same substantial manner as our Strasco Tablet Case.

Size 19 in. long, 8½ in. wide, and 10½ in. deep. Will hold eight 500cc bottles Hog Cholera Serum, also space in Wood tray for Sundries and White Enamel Tray 16½ x 3½ x 2½ for sterilizing Hog Cholera Syringe and Instruments. Price as illustrated $10.00

R. J. STRASENBURGH COMPANY

Manufacturing Chemists.
Surgical Instruments.
Rochester, N. Y.

Succulent Feeds

(Continued from Page 56)

Turnips, beets, carrots, freshly cut grasses, etc., are acceptable to many sick horses which will refuse all else. They should be cut into lengths to avoid choking and fed whenever possible. If lawn clippings are fed, great care must be exercised in the selection. If grass is fresh it is desirable, but if it has been piled up in cocks for some little time it may heat and the middle portion is positively detrimental, if not dangerous.

Where a stove or furnace is available oats may be sprouted, and if a horse refuses properly prepared sprouted oats he is hopeless. Prepare shallow troughs 18x18 inches and about 2 inches deep, with a few small holes in the bottom. Build a rack to hold six, eight or ten of these troughs, one above the other, with space enough between them so they may permit the growth of the sprouts to reach four to six inches high. Fill each trough with oats, keep near the stove, furnace, or in the warmest spot available. Sprinkle several times daily with warm water, the excess drains through each lower trough. The sprouts will grow rapidly, and by alternating the troughs, sprouts the desirable length, about four inches high, will be always available.

The roots are matted, the oats swelled and the tender shoots green and fresh. A chunk about five inches square—roots and all, is enough for one feed. This apparatus is easily made, inexpensive and in the cold climate during the winter months furnished the appetiser par excellence for extremely sick horses.

In conclusion those in charge of very sick horses are advised to offer a tempting feed to the animal very early in the morning. Experience has proved that many animals will eat between four and six o'clock in the morning, and refuse to do so during the rest of the day. It is at this time in the twenty-four-hour period that the animal exhibits the nearest to normal temperature, and is in general enjoying the phase of highest spirits.

Dr. Roy Broadhurst, of Long Beach, Cal., sewed up a fourteen-inch wound on a twenty-foot boa constrictor belonging to a concessionaire of a local show, a job that even the native "Salutris" of India would have passed up.

Veterinarians!

The farmers in your community are depending on you to protect the health of their live stock against hog cholera.

Even though your professional ability be of the highest, it avails you nothing if you fail to use serum and virus of maximum potency and highest virulency.

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KANSAS

Dr. H. Lent has opened an office for practice at Omro, Wisconsin.

The only fault I find with VETERINARY MEDICINE is that it does not come often enough. I am always looking for the journal and when it comes I always find something worth reading. I shall always support VETERINARY MEDICINE. Don't forget to renew my subscription.—C. W. S.

Dr. C. A. White, known to the profession as a prominent canine specialist of Chicago and now located in Los Angeles, California was a contributor to the program of the Veterinary Practitioner's Week, held at the University Farms, Davis, California, January 2-5.

Dr. L. A. Thompson, 25 years old, Ft. Collins, Colorado, suffered the loss of a foot when he was struck by a railroad train while crossing a track near Kansas City, October 26. He was in Kansas City looking for a position when the accident occurred.

Dr. A. W. Billings, who has been assistant to Dr. C. P. Fitch in the department of pathology and bacteriology at the University of Minnesota, has been appointed specialist in veterinary medicine in the agricultural extension service of that state. Dr. Billings is a graduate of the New York State Veterinary College, Cornell University ('17) and has been at the University of Minnesota since February, 1918.

A veterinary correspondence school is in full operation in England. The courses lead to the degrees of B.Sc., D.Sc., M.R.C.V.S., and F.R.C.V.S., and in view of the fact that its advertisements are accepted by such a splendid publication as the Veterinary Journal the enterprise seems to be in harmony with the existing situation.

A monument was unveiled at Hillsboro, Ohio, October 29, 1922, in honor of Felix Renick, father of the Shorthorn industry of Ohio and one of the pioneer promoters of purebred cattle in this country. He imported 19 head in 1834 and other shipments in 1835 and 1836. The prices paid in England ranged from $150 to $925. At a sale held at Hillsboro October 29, 1836, a cow, "Teeswater," brought $2,225.—S. H. Howard.

VETERINARY SITUATION IN ROUMANIA

(Concluded from Page 27)

cities. The slaughter-houses are primitive and rather poorly equipped.

Remuneration Small

Veterinary practice consists chiefly of spaying of sows, horse castrations and vaccinations of various kinds. Only villages where advanced breeding is carried out are able to employ practitioners on account of their scarcity. The shortage of veterinarians can be explained by the fact that during the war the young men were in the military service and there were few available to attend the college, and because in the city where the one college is located, living is very high. And besides, in spite of the importance of the work to be accomplished by the veterinary service the salaries are ridiculously low. The government seems to be doing all it can to suppress epidemics by passing all kinds of regulations, but being impoverished very little effective work can be done under present conditions.

America the Objective

The veterinarians occupying posts along the Russian boundary to prevent the scourges of that disease-ridden country from spreading across the borders are very poorly paid and are compelled to live under very primitive conditions and although loyal to the cause they can not live on patriotism alone. The result is that they are all trying either to leave their positions, to seek other occupations, or like myself, to emigrate to America.

More than 25,000 farmers adopted the use of self-feeders for hogs in 1921, following demonstrations by extension workers, according to reports to the United States department of agriculture.

Dr. M. Jacobs, treasurer of the American Veterinary Medical association, was elected president of the Southeastern States Veterinary Medical association at the annual meeting held at Chattanooga, November 20-21, 1923. Dr. A. L. Pirleman of Atlanta, was elected first vice-president; Dr. A. T. Richardson, Athens, Ga., second vice-president, and Dr. J. S. Andrea, Huntsville, Ala., third vice-president. J. I. Handley of Atlanta was re-elected secretary-treasurer. The next meeting will be held at Greenville, N. C.

VIRUS

The success or failure of serum in hog cholera is dependent upon the virulency of the virus used.

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The United Serum Company, appreciating the great importance of this fact, continues to produce virus of the very highest virulency.

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The standard remedy for bronchial affections for the last nine years. Enthusiastically endorsed by thousands of veterinarians who use it constantly because they get **results** and find it very economical and satisfactory. **Guaialyptol,** in aqueous emulsions (colored as required), is very profitable to dispense. **Guaialyptol** is composed of Guaiacol, Eucalyptus and Camphor Oils, Cresylic Acid and Saponaceous Oils. It is indicated in Bronchitis, Laryngitis, Pharyngitis Oedema Glottidis, Influenza. Distemper, Septic conditions of the alimentary tract, Gastric or Intestinal Flatulence, Pneumonia, etc.

Prices: 1 gal., $5.00.

If there be no bronchial involvement **Eucamphine** is more economical to use.

Prices on Eucamphine:

1 gal., $3.50; 2 gal., $6.00 Prepaid; 5 gal., $15.00 Prepaid

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Dr. E. F. Lowry has been appointed city milk inspector of Ottumwa, Iowa.

Dr. T. C. Booth, who was formerly division veterinarian of the 36th division, A. E. F., with the rank of major, has been appointed assistant state veterinarian by the live stock sanitary board of Texas, vice Dr. F. N. Newton, resigned. Dr. Newton will enter private practice.

Dr. W. H. Welch, president of the A. V. M. A., and Dr. J. S. Koen of the Liberty Laboratories, Bloomington, Illinois, were among those who attended the annual meeting of the Southwestern States Veterinary Medical Association at Chattanooga, in November.

Dr. G. R. Conrad, brother of Dr. Conrad, member of the executive board of the American Veterinary Medical Association and one of the widely known practitioners of the Middle West, is also mayor of his city—Sabetha, Kans.

Dr. W. C. McLaughlin of Melvin, Illinois, displays his notion of what the future of the veterinary profession will be by building a brand new veterinary hospital. The building is now under construction. It will include offices, operating rooms and wards for both large and small animals.

Ninety cent wheat, 40 cent corn, 25 cent oats, seven cent hogs and eight cent cattle, 10 dollar coal, 250 dollar binders, 20 dollar hand plows, 100 dollar mowers, etc, etc., account for most of the ills of the veterinary profession.

Dr. E. B. Hart of the Wisconsin college of agriculture reports in a query to Hoard's Dairyman that ensiling green corn does not destroy the vitamins, but that ensiled dry corn stover does not contain them.

Dr. J. Maffitt, 43 years old, a graduate of Cornell and a practitioner in New York City for a number of years, died at his residence, 43 Ninetieth streeth, November 7.

Dr. W. K. Dennison, Bemidji, Minn., has purchased the interest of his partner, Dr. D. R. Burgess, in the veterinary hospital and will hereafter conduct the business in his own name.